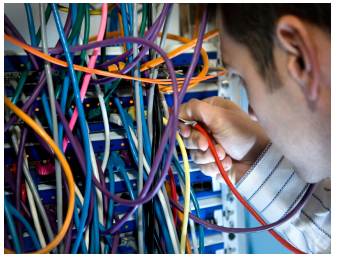
City of Redmond

Information Technology Strategic Plan

April 2009



PACIFIC TECHNOLOGIES INC. 16 YEARS OF EXCELLENCE 1993 - 2009

PTI **Pacific Technologies, Inc.** Practical Planning. Positive Change.

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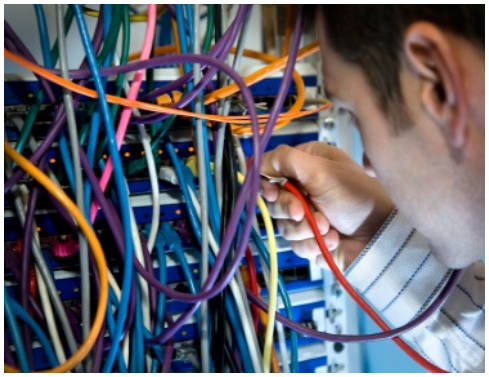

Chapter 1
Executive Summary

Introduction

Early in 2008, the City of Redmond conducted a series of workshops to engage citizens and learn their priorities for government services.

The City of Redmond (the City, Redmond) is well known as a center of technology and the headquarters location for a number of internationally renowned high-tech companies, including Microsoft, Nintendo of America, and AT&T Wireless. Due in part to its large population of knowledge workers, many of Redmond's customers routinely use technology and expect it as part of "doing business" with government. At the same time, nearly 10 percent of Redmond's population is age 65 or over, and many of these residents continue to prefer "high touch" to "high tech" delivery of government services. Redmond's challenge will be to employ technology – in both noticeable and transparent ways – to meet the needs of these diverse constituents.

Early in 2008, the City of Redmond conducted a series of community workshops to engage citizens and learn their priorities for government services (see inset to the right). Driven in part by these citizen priorities, Redmond's new mayor outlined his administration's goals for fiscal years 2009-2010 in the City's first-ever budget by priorities financial plan.

Redmond Citizen Priorities

I want a well-maintained city whose transportation and other infrastructure keeps pace with growth.

I want to live, learn, work, and play in a clean and green environment.

I want a sense of community and connection with others.

I want to be safe where I live, learn, work, and play.

I want a diverse and vibrant range of businesses and services in Redmond.

I want a city government that is responsible and responsive to its residents and businesses.

That financial plan includes increased accountability for performance measurement and results; focused, project-based capital improvements (such as enhancements to Redmond's downtown and Overlake urban centers); service improvement initiatives; increased citizen engagement; and regional partnerships – many of these to be facilitated by cost-effective technology solutions.

With this in mind, the City of Redmond engaged Pacific Technologies, Inc. (PTI) to facilitate the development of an information technology (IT) strategic plan. Beginning in September 2008, Redmond and PTI worked in close partnership to examine the City's current IT environment, establish strategic direction for IT, and develop an implementation plan that effectively deploys IT solutions in support of the City's budget priorities. A project steering committee comprised of senior city executives and information technology representatives provided leadership and critical guidance to this project. Additionally, over 80 city stakeholders – including city executives, managers, IT professionals, and end users – contributed to this planning effort through interviews, focus groups, and other data collection efforts.

The following table summarizes the major findings, key recommendations, and resulting benefits detailed later in this plan.

IT Strategic Plan Summary

Summary Findings	Key Recommendations	Major Benefits
1. Redmond lacks a formal approach, processes, and tools to effectively support citywide IT governance	Adopt a structured, citywide method for making and communicating major IT investment decisions	• Provides a clear, repeatable streamlined, and informed method of making major IT investment decisions • Ensures consistent evaluation of IT initiatives
2. The City's current IT staffing approach is not aligned with best practices and offers insufficient support for its application portfolio	Centralize IT support and add positions to achieve the technology direction outlined in this plan	• Positions the Information Services Division (IS) to provide sufficient, cost-effective IT support to City staff • Enables business unit staff to focus on operations rather than technology issues
3. Several significant gaps exist in the City's application portfolio	Invest in major applications areas – including financial management, permit management, and maintenance management	• Improves service and streamlines operations • Decreases reliance on shadow applications and manual processes
4. Some concerns surround mobile computing, network bandwidth, and the duplication of data centers	Offer mobile computing devices to field workers, increase bandwidth to off-campus locations, and consolidate the City's two data centers	• Helps Redmond "go green" by minimizing the need for traveling to City Hall • Reduces costs associated with maintaining and supporting the City's data centers

Note that this IT strategic plan represents a point-in-time analysis and may not reflect changes after April 2009. As circumstances change, IT priorities must change accordingly. *Consequently, this plan should be treated as a living document, reviewed annually, and revised as necessary.*

The remainder of this executive summary documents key assessment findings, establishes a strategic direction for IT at the City, and identifies an implementation plan – with attendant timelines and costs – for moving forward.

Key Findings

Increasingly, the City relies on information technology to support its budget priorities and facilitate communication with citizens, businesses, visitors, and city employees. No longer deployed simply to support back-office functions, the City's information technology infrastructure is integral to Redmond's ability to directly serve its constituents.

Throughout, this document references the City's Information Services' **divisions**:

- Application Services
- Network Services
- Support Services

In addition, PTI's analysis is organized around five IT **disciplines**:

- Customer support
- Infrastructure support
- Application support
- IT planning
- IT administration

We will italicize and include the word "*discipline*" when referencing an IT discipline as analyzed by PTI.

This planning effort – and the City's many strategic regional IT partnerships – demonstrate a citywide commitment to improving services and increasing operational efficiency through the use of technology.

Areas of Strength

Planning engagements of this nature necessarily focus on weaknesses – but it is important to recognize IT strengths the City can leverage and build upon.

- **City executives and senior management are committed to improving citywide information technology.** In his October 2008 letter to citizens and members of the City Council, Mayor Marchione outlined his intent to invest in the City's future with a new initiative to fund innovative technologies that make government services more efficient and customer-focused. Since then, the City's senior management team developed this IT strategic plan toward that end.
- **The City participates in many strategic, regional partnerships.** Redmond participates with 38 other municipalities and agencies in the eCityGov Alliance to provide online government services, such as commercial property listings and Human Services. The City also participates in several public safety partnerships, including the Regional Automated Information Network (RAIN), Law Enforcement Information Exchange (LInX), and Coplink for secure, real-time information sharing and analysis; the Eastside Public Safety Communications Agency (EPSCA) for emergency regional radio access services; and beginning July 2009, the Northeast King County Public Safety Communication Agency (NORCOM) for fire/emergency medical services dispatch. Additionally, Redmond is a partner with King County and 31 emergency medical services agencies in the regional Systemwide Enhanced Network Design (SEND) strategic initiative to improve emergency medical services. As a result of these and other regional partnerships, citizens benefit from streamlined, coordinated government services. Redmond and other local governments also benefit from economies of scale that otherwise would be difficult to achieve.

- **The City is leveraging emerging telephony, server, and server storage technologies.** Voice over IP (VoIP[1]) has been implemented in City Hall. Over 63% of the City's servers are virtualized[2], averaging eight virtual servers per physical server. Additionally, the City takes advantage of storage area networks (SAN)[3] for server storage management. By deploying these enabling technologies, Redmond is minimizing its maintenance costs and labor effort, and is realizing increased operational efficiencies.
- **The City's network and data appear to be well-protected from external threats.** Redmond's dual firewalls, gateway, and spam filtering solution shield the City's network from potentially harmful viruses – helping ensure that City technology assets continue functioning and important data remain inaccessible to unauthorized parties.
- **The City regularly monitors and tests its technology infrastructure.** Redmond employs infrastructure monitoring tools to track data center environmental controls, server load, power consumption, and physical security. The City also regularly tests emergency IT backup power. As a result, Redmond is well protected against physical security threats and well-positioned to continue critical operations during and/or after a power loss.

Opportunities for Improvement

Although the above strengths provide a firm foundation for the City's technology environment, PTI's assessment surfaced a variety of areas in which Redmond's technology position can further improve. This section highlights the most significant challenges. Chapter 2 describes these opportunities for improvement in more detail.

Without a clearly articulated citywide direction for technology, IT service delivery tends to be reactive rather than proactive.

- **The City lacks a citywide approach to IT decision making.** Although Redmond has a clear Budget by Priorities (BP) financial plan, it has neither citywide vision, nor a formal plan for information technology. Additionally, the City lacks structured processes – and a chartered governance body – to make citywide IT investment decisions. As a result, the City may not be realizing the greatest return on IT investments – in terms of both service improvements and operational efficiencies.
- **Without a clearly articulated citywide direction for technology, IT service delivery is generally reactive rather than proactive.** Absent a clear citywide vision for IT, technology service delivery strategies and priorities are not well defined. As a result, operations and maintenance priorities frequently shift. IT initiatives are often prioritized based on a "squeaky wheel gets the grease" basis, rather than on well-communicated criteria aligned with the City's budget priorities.

[1] The technology used to transmit voice conversations over a data network using Internet protocol.
[2] The use of software to emulate multiple server environments on one physical server.
[3] A high-speed, special-purpose network that interconnects data storage devices with associated servers, enabling enhanced storage management, backup, and application uptime.

- **The City's *application support discipline* is understaffed.** Fewer than 1.0 full-time equivalent (FTE) supports eGovernment applications – an area that is expected to significantly expand with increasing demand for online transaction capabilities and other city services. Approximately 1.5 FTEs support public safety applications, and almost 1.0 Information Services FTE supports all of the City's administrative applications, including: human resources and payroll, finance and budget, document management, and grant and contract management[4].
- **Lack of IT resources undermines Redmond's goal of regional technology partnership and erodes the City's ability to provide ongoing, long-term support for its application portfolio.** The City's software suite consists of predominantly high-end software applications that need consistent support effort from specially trained staff. In the absence of sufficient IT support, the efficiency and effectiveness of critical business functions suffer, including provision of eGovernment services, coordination of essential public safety services, maintenance of essential infrastructure, and proactive growth management.
- **Several of the City's critical business applications require significant investment or upgrade.** Although purchased more than four years ago, Redmond's core finance management software, JDEdwards' EnterpriseOne, was never fully implemented. It lacks integration with other city applications; automated workflow is not used; business processes were not reviewed or revised to optimize use of the software; users were not fully trained; and the human resource management module was purchased, but is not utilized to its full potential. Additionally, the City's permit management software, Accela's PERMITS Plus, is at end-of-life, and it is unclear how long Accela will continue to support it – or what the cost of migration to Accela's designated replacement will be. Each of these systems will require major investments of money and internal labor effort within the next five years.
- **The City relies too heavily on custom application development.** Custom-developed applications compose over one-third of the City's application portfolio, and citywide application support services dedicate approximately 40% of their labor effort to maintaining this in-house software. Such reliance makes Redmond dependent upon the institutional knowledge of its individual application developers and results in missed opportunities to incorporate best practices inherent in commercial software products.

[4] The City also contracts for professional services to support JDEwards' EnterpriseOne, the City's finance management software.

- **Many critical business functions lack automation.** Several business functions still rely on shadow applications[5] and manual, labor-intensive, paper-based processes to compensate for inadequate automation, including: decision support, emergency management, grant and contract management, human resource management, project accounting, public safety scheduling and timekeeping, and maintenance management. As a result, information remains siloed – increasing data duplication, decreasing data integrity, and delaying operations.
- **While Redmond's technical environment is largely optimized – and standardized across the City – concerns surround mobile computing, bandwidth, and the duplication of data centers.** Although building inspectors now have technologies enabling mobile inspections and the ability to remotely access and download related data, many other city workers in public works, fire, and parks and recreation that could benefit from similar technologies continue to work without them.

  While Redmond's core fiber network has ample bandwidth, some of the City's off-campus locations (e.g., Redmond Ridge and fire stations 13, 14, 16, and 18) require greater data throughput to improve application/data request response times. The City also operates two data centers in the police building (one for police, and one for all other city departments), which require duplicate data storage infrastructure, monitoring controls, backup power, and environmental controls. As a result, the City misses opportunities for enhanced operations, increased IT infrastructure efficiencies, and reduced environmental impact.

[5] Point solutions such as those built in Microsoft Access or Excel used to make up for the lack of, or deficiencies in, current automation.

Strategic Direction

City executives, senior management, and other city stakeholders came together in a series of focus groups and workshops to develop a clear citywide IT strategic direction – driven by Redmond's budget priorities. This includes specific IT goals, strategies, and implementation projects (as indicated by the graphic below). Chapters 3 and 4 describe each of these components in greater detail.

The following five pages expand upon Redmond's strategic IT direction.

Goal 1: Accessibility and Accountability

1

Deploy technology that makes government accessible and accountable to constituents and business partners

Among other priorities, citizens communicated that they wanted "a city government that is responsible and responsive to its residents and business." This IT goal deploys technology to make government more accessible and accountable.

Strategies

- **Enhance the use of the City's website for delivery of government information and services**
- **Support public access to the City via the Internet**
- **Align reporting and decision support systems with budget priorities and performance measures**

Implementation Projects

1.1 Redesign the City's website

1.2 Deploy document management citywide

1.3 Evaluate and test business intelligence software

1.4 Investigate options for wireless access throughout the City

Benefits

- Provides "anywhere, anytime" online access to city services and information
- Enhances citzen's sense of community and connection
- Makes government more accessible and accountable

Goal 2: Regional Cooperation and Partnership

Seek regional technology partnerships that provide benefit to the City

Redmond already participates in strategic, regional IT partnerships, including the eCityGov Alliance for online government services, several regional public safety partnerships, and the initial planning efforts for the Systemwide Enhanced Network Design (SEND) initiative to improve emergency medical services. This strategic IT goal continues these partnerships and develops new ones to enhance regional services and improve cost efficiencies.

Strategies

- **Build on existing cooperative, regional relationships**
- **Develop new partnerships that enhance service and reduce costs**

Implementation Projects

2.1 Participate in the System Enhanced Network Design (SEND) initiative

2.2 Evaluate regional partnership opportunities for delivery of online services

Benefits

- Enhances citizen services
- Improves public safety and regional information sharing
- Leverages economies of scale and reduces cost

Goal 3: Streamlined Operations

Use information technology to streamline business processes, enhance city operations, and support sustainability

The City is focusing on cost-effective technology solutions to make government services more efficient and customer-focused. This strategic IT goal implements software automation to streamline business processes and enhance city operations.

Strategies

- **Fill business automation gaps**
- **Emphasize use of commercial software**
- **Retire custom applications and shadow systems**
- **Empower staff with access to the information and services they need**

Implementation Projects

3.1 Implement an improvement program for the City's finance and human resource management system

3.2 Evaluate and implement an enhanced permitting system

3.3 Migrate to the current version of the City's police dispatch and records management system

3.4 Procure and implement a maintenance management system

3.5 Integrate GIS and other databases with business applications

3.6 Enhance the City's intranet and collaboration tools

Benefits

- Enhances permit processing
- Streamlines maintenance management
- Improves worker productivity
- Increases financial data reliability and makes government more accountable
- Increases the reliability of public safety records

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Goal 4: IT Service and Decision Making

Align IT services and decision making with business priorities, customer needs, and best practices

Redmond needs a viable approach to evaluating major IT investments and ensuring alignment with budget priorities. It also requires efficient and effective delivery of IT services. This strategic goal establishes citywide IT governance roles, processes, and tools. In addition, it centralizes and adds IT support to enhance service management.

Strategies

- **Foster a citywide approach to IT decision making and setting priorities**
- **Manage IT service to specific performance objectives**
- **Organize the Information Services Division to optimize quality and cost-effectiveness of service delivery**

Implementation Projects

4.1 Establish an IT steering team and implement a structured IT decision making model

4.2 Implement a formal approach to IT service management

4.3 Centralize IT support services

4.4 Align the Information Services (IS) organization with best practices

4.5 Develop a tactical IS work plan

Benefits

- Makes government more accountable
- Enhances business operations
- Improves city worker productivity

Goal 5: Technical Infrastructure

Maintain a secure, reliable, and cost-effective technology infrastructure

The City's technical infrastructure – its hardware, networks, databases, and operating systems – provides the critical foundation for the City's business applications. This strategic IT goal implements improvement to this infrastructure that increase efficiency, enhance security and disaster recovery, enable remote access for city workers, and position the City to meet growing bandwidth needs.

Strategies

- **Consolidate core infrastructure**
- **Position the City's network for future capacity needs**
- **Improve field and remote access for city workers**
- **Ensure appropriate security for IT systems**

Implementation Projects

5.1 Consolidate data centers

5.2 Increase wide area network bandwidth

5.3 Deploy field and remote access for mobile workers

5.4 Develop a formal disaster recovery plan

5.5 Develop a citywide IT security plan

Benefits

- Enhances business operations and improves city worker productivity
- Protects the City's IT and information assets

Implementation Timeline

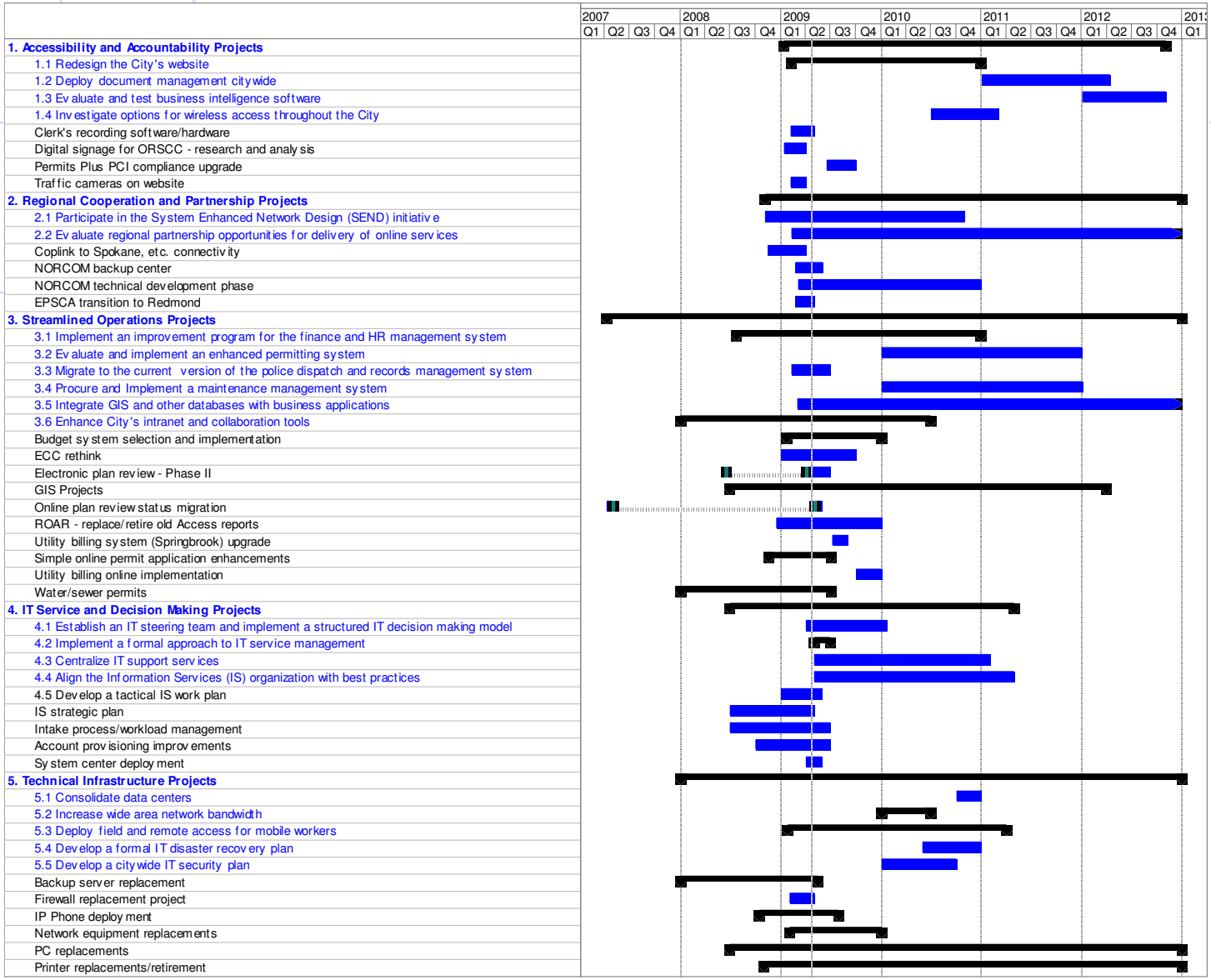
In addition to strategic projects, many tactical projects are required to support and maintain the City's IT infrastructure and assets. The Gantt chart on the following page presents a projected timeline for the strategic implementation projects outlined in this strategic plan (listed in blue), integrated with the City's planned operations and maintenance (O&M) and non-capital projects (listed in gray). The timeline is presented in calendar years.

It is important to note that much work already is in progress, as indicated by timelines beginning prior to the publication date of this strategic plan.

Proposed Implementation Timeline

Strategic Implementation Projects

Operations and Maintenance and Non-Capital Projects



The City will need to periodically review and make adjustments to this implementation timeline – based on resource constraints and changing business needs and priorities.

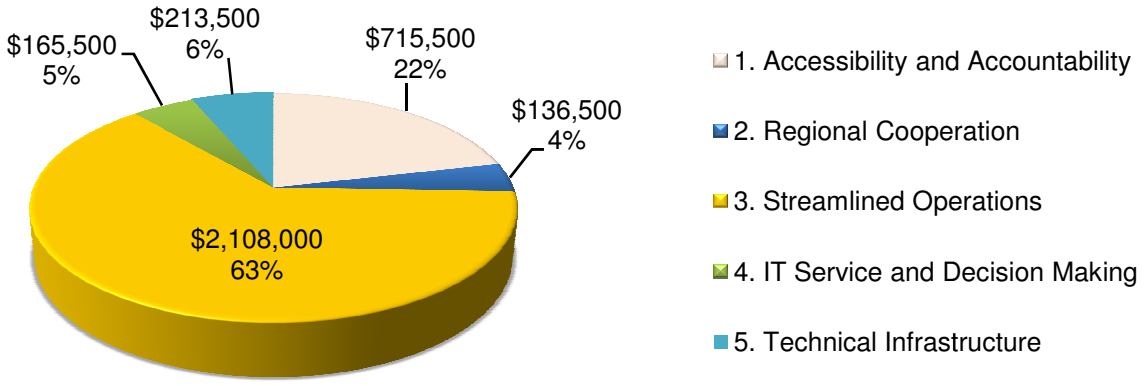
Implementation Project Costs

This section examines total expenditures by IT goal and presents one-time, recurring, and annualized project costs. The cost estimates outlined in this section provide Redmond with budget guidelines for the plan's implementation projects. PTI developed these cost estimates based on industry knowledge, best practices, market research, and average vendor costs.

Expenditures by IT Goal

It can be helpful to look at total project expenditures by IT goal to ensure that planned implementation efforts align with overall strategic direction. The following chart – displaying average cost esimates – makes clear that the City's portfolio of implementation projects align with the City's IT goals. The largest and most expensive projects invest in streamlining operations and making government more accessible and accountable to its citizens.

Average Planned Strategic IT Expenditures by IT Goal



One-time and Recurring Costs

The following table presents one-time and recurring cost estimates for each strategic implementation project. The subsequent page highlights annualized costs. In some instances, significant differences exist between the low-end and high-end estimates. In general, low-end estimates tend to reflect reduced scope, lower-cost materials (e.g., software, hardware), and a greater reliance on internal labor. High-end estimates reflect a broader scope, higher-cost components and software, larger labor requirements, and generally include external consulting for all or some of a project's implementation. Costs do not include current city expenditures or already budgeted dollars, unless noted otherwise.

One-Time and Recurring Project Cost Estimates

		One-Time		Recurring	
		Low	High	Low	High
1. Accessibility and Accountability Projects					
1.1	Redesign the City's Website*	$ 196,000	$ 300,000	$ -	$ -
1.2	Deploy document management citywide	$ 210,000	$ 339,000	$ 4,000	$ 8,000
1.3	Evaluate and test business intelligence software	$ 2,000	$ 55,000	$ -	$ 5,000
1.4	Investigate options for wireless access throughout the City	$ 44,000	$ 70,000	$ -	$ -
2. Regional Cooperation and Partnership Projects					
2.1	Participate in the System Enhanced Network Design (SEND) initiative	$ 107,000	$ 140,000	$ 10,000	$ 12,000
2.2	Evaluate regional partnership opportunities for delivery of online services	$ -	$ 26,000	$ -	$ -
3. Streamlined Operations Projects					
3.1	Implement an improvement program for the City's finance and HR management system	$ 639,000	$ 1,209,000	$ 21,000	$ 88,000
3.2	Evaluate and implement an enhanced permitting system	$ 465,000	$ 775,000	$ 56,000	$ 111,000
3.3	Migrate to the current version of the City's police dispatch and records management system	$ -	$ -	$ -	$ -
3.4	Procure and implement a maintenance management system	$ 252,000	$ 465,000	$ 8,000	$ 30,000
3.5	Integrate GIS and other databases with business applications	$ -	$ 147,000	$ -	$ -
3.6	Enhance the City's intranet and collaboration tools	$ 78,000	$ 186,000	$ 10,000	$ 14,000
4. IT Service and Decision Making Projects					
4.1	Establish an IT steering team and implement a structure IT decision making model	$ -	$ 25,000	$ -	$ -
4.2	Implement a formal approach to IT service management	$ 48,000	$ 78,000	$ 16,000	$ 16,000
4.3	Centralize IT support services	$ 14,000	$ 21,000	$ -	$ -
4.4	Align the Information Services (IS) organization with best practices	$ -	$ 127,000	$ 552,000	$ 552,000
4.5	Develop a tactical IS work plan	$ -	$ 18,000	$ -	$ -
5. Technical Infrastructure Projects					
5.1	Consolidate data centers	$ -	$ 21,000	$ -	$ -
5.2	Increase wide area network bandwidth	$ 28,000	$ 36,000	$ 24,000	$ 29,000
5.3	Deploy field and remote access for mobile workers	$ 24,000	$ 70,000	$ 6,000	$ 18,000
5.4	Develop a formal IT disaster recovery plan	$ -	$ 118,000	$ -	$ -
5.5	Develop a citywide IT security plan	$ 50,000	$ 80,000	$ -	$ 10,000
	Total Cost	**$ 2,113,000**	**$ 4,236,000**	**$ 707,000**	**$ 893,000**

*Includes already budgeted dollars.

Note: Costs are rounded to nearest thousand dollars and do not account for inflation

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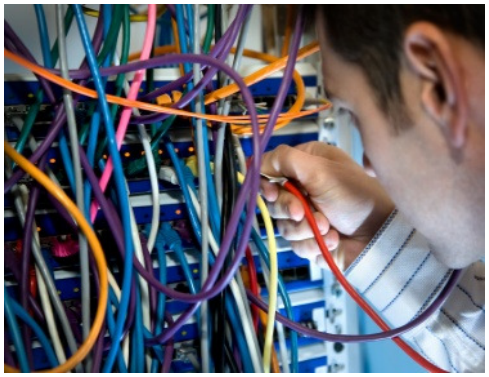
Conclusion

In many respects, this planning effort represents the "easy part." The real work lies ahead – in translating Redmond's IT goals and strategies into results. With the implementation of this plan, the City of Redmond can achieve significant benefits – aligned with the City's budget priorities.

Redmond's Citizen Priorities	This IT Strategic Plan:
Growth and Infrastructure	• Streamlines the permit process for citizens and businesses
"Clean and Green"	• Provides "anywhere, anytime" online access to city services and information – reducing trips to City Hall • Deploys mobile technologies to decrease trips for city workers • Streamlines operations and increases efficiencies to support sustainable business practices
Community	• Redesigns the City's website to make government services and information easier to access
Safety	• Continues – and in some cases expands – Redmond's public safety IT partnerships to enhance emergency medical services and improve regional information sharing • Migrates the City to a single, current version of public safety dispatch and records management software, increasing the efficiency and security of public safety systems
Business Diversity	• Explores options for wireless access throughout the City to attract business and enhance community connectivity
Responsible Government	• Invests in the City's core finance management software as well as automated decision support to facilitate improved accountability to performance measures



Chapter 2
Assessment

A viable IT strategic planning effort must take into account the City's current business and political environments as well as its current technology environment. This chapter explores the environmental trends driving the demand for information technology and presents PTI's assessment of the major IT strengths and challenges at the City of Redmond. It serves as a basis for the City's strategic directions presented in Chapter 3.

2

Business Context

Redmond's challenge will be to employ technology – in both noticeable and transparent ways – to meet the needs of its diverse constituents.

With input from the City's steering committee and over 80 city stakeholders, PTI assessed the environmental trends driving the demand for information technology in Redmond. A diverse and sophisticated population, increasing service demands, and a changing political landscape require that City of Redmond employ technologies to more effectively and efficiently deliver essential city services.

A Diverse and Sophisticated Population

The City of Redmond is well known as a center of technology and the headquarters location for a number of internationally renowned high-tech companies, including Microsoft, Nintendo of America, and AT&T Wireless. Due in part to its large population of knowledgeable workers, many of Redmond's customers for city services routinely use technology – and expect it as part of "doing business" with government. At the same time, nearly 10 percent of Redmond's population is age 65 or over, and many of these residents continue to prefer "high touch" to "high tech" delivery of government services. Redmond's challenge will be to employ technology – in both noticeable and transparent ways – to meet the needs of these diverse constituents.

Increasing Service Demands

Early in 2008, the City of Redmond conducted a series of community workshops to learn the citizen's priorities for government services. Among these were increasing demands for transportation and growth management, public safety, a clean and green environment, responsible government, and community connections. The City increasingly relies on information technology to support these vital government services as well as to facilitate outreach and communication with citizens, businesses, visitors, and city employees. No longer used simply to support back-office functions, the City's technology infrastructure is integral to Redmond's ability to directly serve its constituents.

A Changing Political Landscape

Driven in part by these citizen priorities, Redmond's new mayor outlined his administration goals for fiscal years 2009-2010 in the City's first-ever Budget by Priorities (BP) financial plan. This plan includes increased accountability for performance measurement and results; focused, project-based capital improvements (such as enhancements to Redmond's downtown and Overlake urban centers); service improvement initiatives; and increased citizen engagement and regional partnerships. All of these can be facilitated by cost-effective technology solutions.

Assessment Summary

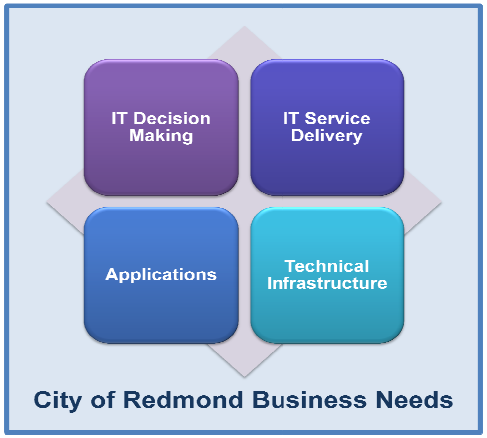
This assessment represents a point-in-time, based on analysis conducted from September 2008 through March 2009. As city circumstances change, IT priorities must change accordingly. Consequently, this plan should be treated as a living document, reviewed annually, and revised as necessary.

Pacific Technologies, Inc. (PTI) collected and analyzed data provided by the City pertaining to its IT spending, labor, applications, and infrastructure. PTI used this information to assess the City's technology position against industry standards, best practices, and PTI's database of local government technology metrics. PTI gathered additional information through one-on-one interviews and focus groups with the Redmond's managers and staff – providing broad opportunities for participation.

PTI validated findings and recommendations through direct feedback and planning workshops with the project's IT steering committee.

PTI organized this analysis around four strategic IT focus areas and within Redmond's overall business context:

- **IT Decision Making** – processes, roles, and tools to support IT planning and investment decisions
- **IT Service Delivery** – organizational structure and staffing approaches to support applications and infrastructure
- **Applications** –software to support the City's business functions
- **Technical Infrastructure** – hardware, systems software, databases, and network components to support the City's applications



PTI utilizes a proprietary tool to summarize an organization's baseline IT position. Applying quantitative rankings to nearly 100 key indicators; PTI plots the position of each IT focus area in one of the following four quadrants:

1. **Leaders:** Focus areas in this quadrant indicate a combination of effective operations, appropriate strategic investment and positioning.
2. **Fire-Fighters:** A position in this quadrant indicates a focus area that largely functions in an ad hoc manner. Correspondingly, these areas need both strategic guidance and tactical attention.
3. **Workers:** Focus areas in this quadrant conduct current operations very efficiently, but lack a strategic outlook for the next three to five years. An effective planning effort can move these areas into the "Leaders" quadrant, often with relatively small investments.
4. **Planners:** Focus areas in this quadrant often have well laid out plans, but conduct current operations inefficiently. Generally speaking, these areas require attention to bridge the gap between current operations and their desired IT position.

PTI's assessment tool plots the position of an organization's IT focus areas based on over 100 strategic and operational indicators.

As most organizations tend to improve operational efficiency as they conduct better planning processes, their IT position typically progresses along a linear trend line that starts at the bottom-left and moves to the top-right.

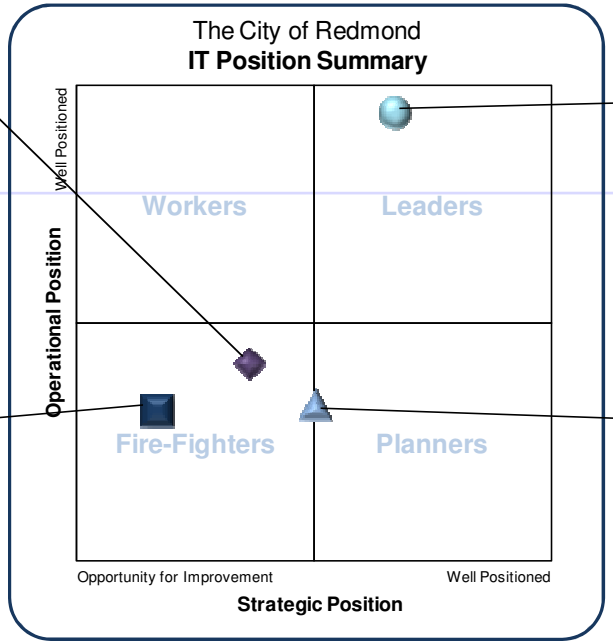
The figure on the following page illustrates the City of Redmond's current IT position, evaluated within this framework. This assessment is based on information gleaned from interviews and focus groups with city staff, and data collected on the City's IT spending, staffing, and infrastructure.

Applications

Users are satisfied with many areas of business automation. However, the City's application portfolio still relies on custom and shadow applications in many critical business areas.

IT Decision Making

While this planning effort – and a number of strategic regional partnerships – demonstrate a commitment to enabling technologies, the lack of a citywide approach for setting IT priorities results in ad hoc, uncoordinated IT investments.



Technical Infrastructure

While Redmond's technical environment is largely optimized – and standardized across the City – concerns still surround mobile computing, bandwidth, and the duplication of data centers.

IT Service Delivery

Without a clear citywide vision for IT, IT service delivery tends to be reactive rather than proactive. And with few performance standards in place, some business units lack confidence in centralized IT support.

Assessment Findings

This section details PTI's findings surrounding the City of Redmond's current IT position. It includes a quantitative baseline for IT spending and staffing, as well as areas of strength and major opportunities for improvement in each of the four strategic IT focus areas.

Quantitative Baseline

This quantitative profile provides a baseline from which the City can measure its progress. It also informs the findings presented later in this chapter.

Redmond spends $4.16 million – approximately 4.26% of its total operation and maintenance (O&M) expenditure – on technology O&M, inclusive of fully-burdened staff salaries, hardware and software maintenance, and other recurring technology-related expenditures.

$4.16m

Spending on IT operations and maintenance in 2007

(O&M)

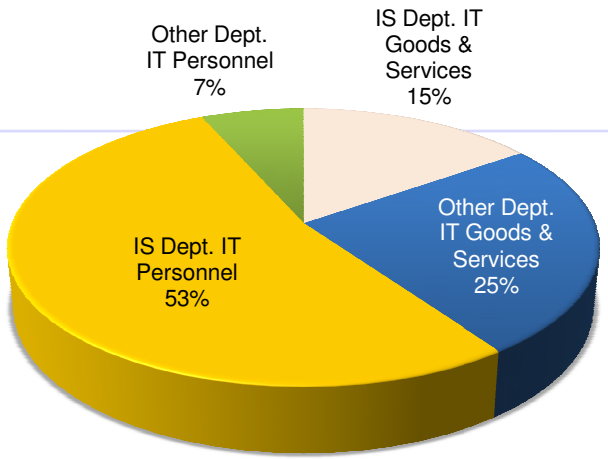
$81.05

IT O&M spending per citizen in 2007[6]

$6,365

IT O&M spending per city FTE in 2007

City of Redmond IT O&M Spending (2007)



	Expenditures	% of Total Operating Budget
Total City Operating Budget	**$97,652,315**	
IT Operating Budget	**$4,160,891**	**4.26%**
IT Goods & Services	**$1,650,106**	**1.69%**
IS Division	628,472	
All Other Departments	1,021,634	
IT Personnel	**$2,510,785**	**2.57%**
IS Division	2,181,629	
All Other Departments	329,156	

[6] Based on a population of 51,340 as estimated by the 2005 – 2007 American Community Survey (ACS).

16.85

FTEs in Information Services

4

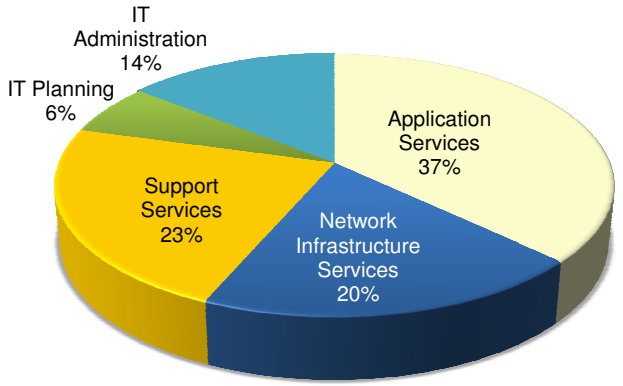
IT-titled staff in other city departments, including Police, Fire, Planning, and Parks & Recreation

$17,151

Spending on hourly contract labor in 2007 and 2008 in support of EnterpriseOne, the City's financial management software

An Information Services Division staff of 16.85 full-time equivalents (FTEs)[7] provide *application support*, *network infrastructure support*, and *customer support* to over 650 city staff. Additionally, the Police, Fire, and Planning and Community Development departments have IT staff supporting these same disciplines.

CIty of Redmond IT Staffing Allocation
(All Departments)



	IS FTEs	Other Department FTEs
Application Services	5.07	2.65
Network Infrastructure Services	3.91	0.15
Support Services	3.66	1.10
IT Planning	1.23	0.10
IT Administration	2.98	0.00
Total	**16.85**	**4.00**

[7] Does not include capital labor.

The following sections expand on findings derived from the above data as well as from interviews and focus groups with city staff, application reviews, additional quantitative information, and a technology infrastructure walkthrough. We organized them around the four strategic IT focus areas:

- IT decision making
- IT service delivery
- Applications
- Technical infrastructure

IT Decision Making

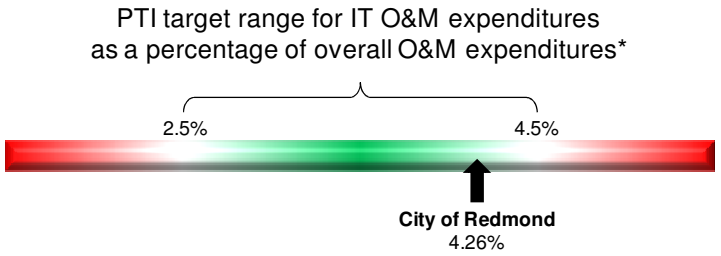
While this planning effort – and the City's many strategic regional IT partnerships – demonstrate a commitment to enabling technologies, the lack of a citywide approach for setting IT priorities results in ad hoc, uncoordinated IT investments.

IT decision making encompasses an organization's ability to make knowledgeable technology investment decisions aligned with its business needs. From a strategic perspective, IT decision making (including governance processes and tools) represents a critical area, as it determines how the City plans for, allocates, and manages its IT resources. Without appropriate leadership and direction, ad hoc decisions and sub-optimal investments often occur.

Strengths

The following table describes areas of strength and associated impacts of the City's IT decision making.

Finding	Impacts
City executives and senior management are committed to improving citywide information technology *In his October 2008 letter to citizens and members of the City Council, Mayor Marchione outlined his intent to invest in the City's future with a new initiative to fund innovative technologies to make government services more efficient and customer-focused. Since then, the City's senior management team has worked together to develop this information technology strategic plan to direct those investments.*	• Aligns IT investments with citizen and budget priorities • Assures city staff that IT is a priority
The City participates in the eCityGov Alliance *Redmond participates with 38 other municipalities and agencies in the eCityGov Alliance to provide government services such as commercial property listings and Human Services via shared, regional web portals.*	• Streamlines the customer experience • Encourages a coordinated, regional approach to selected government services • Achieves economies of scale in associated technology investments • Reduces trips to the City Hall counter

Finding	Impacts
The City participates in several strategic public safety partnerships *Redmond participates with four other partners and 29 subscriber agencies in the Eastside Communications (soon renaming to NORCOM) for fire dispatch. The City also participates in the Regional Automated Information Network (RAIN), Law Enforcement Information Exchange (LInX) and Coplink for secure, real-time information sharing and analysis.*	• Encourages a coordinated, regional approach to public safety and emergency services • Achieves economies of scale in associated technology investments
Redmond is a partner in the regional SEND strategic initiative for emergency medical services *Redmond is a partner with King County hospitals, dispatch centers, and 31 emergency medical services agencies in the early planning stages for the regional Systemwide Enhanced Network Design (SEND) strategic initiative to improve emergency medical services and information exchange.*	• Encourages a coordinated, regional approach to emergency medical services • Achieves economies of scale in associated technology investments • Leads to long-term outcome improvement related to emergency medical services
Redmond spends approximately 4.26% of its total operation and maintenance (O&M) expenditure on technology O&M, in line with PTI's target range for local government[8]  *Excludes costs related to capital and debt management	• At a strategic level, Redmond adequately funds IT O&M activities
A structured governance model for GIS is in place *An inter-departmental steering committee has been operating since 2003 to evaluate new GIS projects, develop annual work plans, and govern GIS investments.*	• Effectively prioritizes GIS-related efforts • Ensures consensus on GIS investments and priorities

[8] PTI's target benchmarks are based upon IT spending, staffing, and inventory data collected from industry best practices, surveys, and local government clients since 1993. These target benchmarks are updated annually.

Finding	Impacts
The City funds a regular hardware replacement schedule *The City regularly replaces personal computers, laptops, servers and network equipment every four years.*	• Ensures hardware stays current • Enables the City to accurately forecast and budget hardware replacement costs • Avoids large, unplanned expenditures to replace obsolete technology

Opportunities for Improvement

The following table identifies the City's IT decision-making challenges and associated impacts.

Finding	Impacts
Additional opportunities for regional partnership still exist *Although Redmond participates in the eCityGov Alliance for some online government services, it currently does not participate in the Alliance's online building permits or shared eProcurement portals.*	• Misses the opportunity to enhance citizen services and leverage economies of scale
Redmond lacks a citywide approach to IT decision making *The City lacks a clear vision for IT, and as such, has no clear criteria with which to prioritize IT investments. Additionally, there is no inter-departmental body or structured process to identify and prioritize IT investments.*	• Allows ad hoc IT investments, which may not best support budget priorities • Results in missed opportunities to achieve economies of scale or to leverage similar project efforts • Delays or stalls technology investments as staff resources are reallocated to shifting priorities
The City lacks IT performance and accountability measures *The City does not define, track, nor communicate IT performance metrics.*	• Provides no clear way to demonstrate project outcomes • Hinders the City's ability to identify and address service issues • Contributes to a lack of confidence in centralized IT service delivery
The City lacks formal IT disaster recovery plan *While the City performs disaster recovery planning, it has no documented IT disaster recovery plan and lacks a risk management plan for its data assets.*	• Potentially prevents business operations during and/or after a disaster • Places data assets at risk

Finding	Impacts
The City lacks an integrated IT asset inventory *Redmond does not track or maintain an integrated inventory of its information technology hardware, software, and data assets.*	• Complicates hardware refreshes • Impedes disaster recovery planning

IT Service Delivery

IT service delivery refers to the organization, staffing levels, and allocation of technology support personnel. An assessment of this focus area provides insight into the alignment of IT services with overall business objectives and IT service demands.

Without a clear citywide vision for IT, IT service delivery tends to be reactive rather than proactive. And with few performance standards in place, some business units lack confidence in centralized IT support.

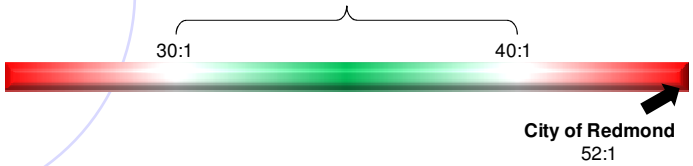
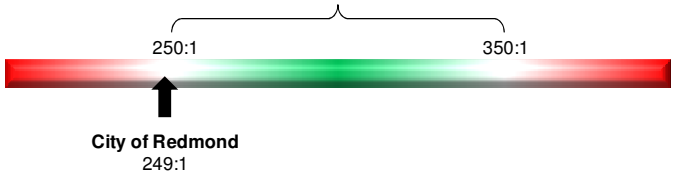
PTI utilized an IT staffing matrix to gather information surrounding IT labor effort at the City of Redmond. The matrix asked each IT-titled employee to allocate the time he or she spends performing a variety of tasks in five key IT disciplines: *customer support*, *infrastructure support*, *application support*, *IT planning*, and *IT administration*.[9] This data, when combined with PTI's technical inventory, enables a comparison of city IT labor effort to industry best practices, PTI target ranges, and IT staffing in other government organizations.

Strengths

The following table describes the City's IT service delivery areas of strength and associated impacts.

Finding	Impacts
City staff find individual Information Services staff hard-working and helpful *In interviews and focus groups conducted by PTI, staff reported that telephone support is well regarded throughout the city and that help desk and desk-side services are improving.*	• Builds strong individual IT service relationships
Public safety is satisfied with their departmental IT support *Both the police and fire departments have their own IT staff providing application and other IT support services for line of business software. Staff within each of these departments report being very satisfied with this approach.*	• Provides business unit control over IT labor effort • Encourages IT staff to develop in-depth understanding of business operations

[9] Definitions for each of these five IT functions are available in Appendix D.

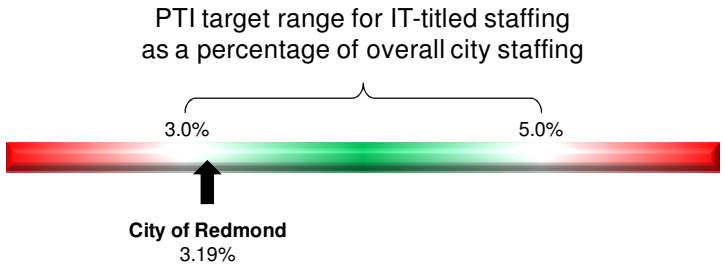
Finding	Impacts
The City's server:server support ratio is 52:1, well above PTI's target range of 30 to 40:1[10] PTI target range servers to server support staff  *Redmond has nearly 1.50 Information Services Division FTEs supporting 75 servers within the City.*	• Efficiently manages servers, ensuring reliability
The City's PC:PC support staff ratio is 249:1, very close to PTI's target range of 250 to 350:1[11] PTI target range for PC to PC-support staff  *Redmond has just over 2.6 Information Services Division FTEs supporting 650 personal computers (PCs).*	• Decreases costs related to PC support • Enables staff to perform other support functions

[10] PTI's target benchmarks are based upon IT spending, staffing, and inventory data collected from industry best practices, surveys, and local government clients since 1993. These target benchmarks are updated annually.

[11] PTI's target benchmarks are based upon IT spending, staffing, and inventory data collected from industry best practices, surveys, and local government clients since 1993. These target benchmarks are updated annually.

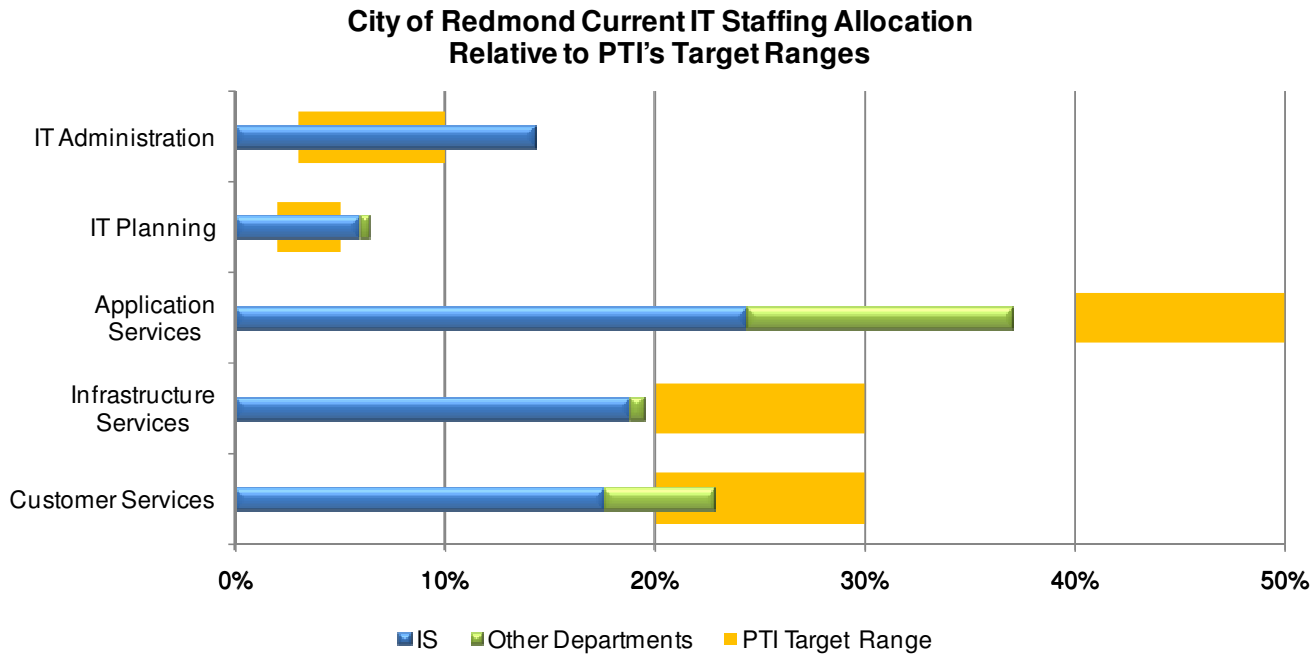
Opportunities for Improvement

The following identifies the City's challenges regarding delivery of IT services.

Finding	Impacts
The City's IT service strategy and priorities lack clear definition *Without an agreed and communicated citywide vision for IT, IT service delivery tends to be reactive rather than proactive. Operations and maintenance priorities frequently shift and efforts are often prioritized based on "squeaky wheel gets the grease" rather than on well-defined, well-understood criteria.*	• Leads to an inability to effectively support ongoing operations and maintenance of technology investments • Leaves some business units resistant to centralized IT service delivery
Information Services lacks critical skills to effectively deliver IT services *While business unit staff are generally pleased with individual Information Services staff members, Information Services lacks many critical core competencies – common in modern IT organizations – that would position IS as a customer-focused organization and a strategic asset for the City. These include IT service management, and customer relationship management.*	• Leads to customer perception that IS lacks a service-oriented culture • Leads to a lack of confidence in centralized IT service delivery
The City's IT staffing is within PTI's target range for local government[12] but does not position Redmond to achieve its IT vision  *Redmond's IT staffing level is 3.19% – the lower end of PTI's target range and an effort level that is even less commensurate with the City's desire to use IT as a strategic tool.*	• Provides only a basic level of IT support • Hinders Redmond's ability to leverage IT tools and processes to improve business practices

[12] PTI's target benchmarks are based upon IT spending, staffing, and inventory data collected from industry best practices, surveys, and local government clients since 1993. These target benchmarks are updated annually.

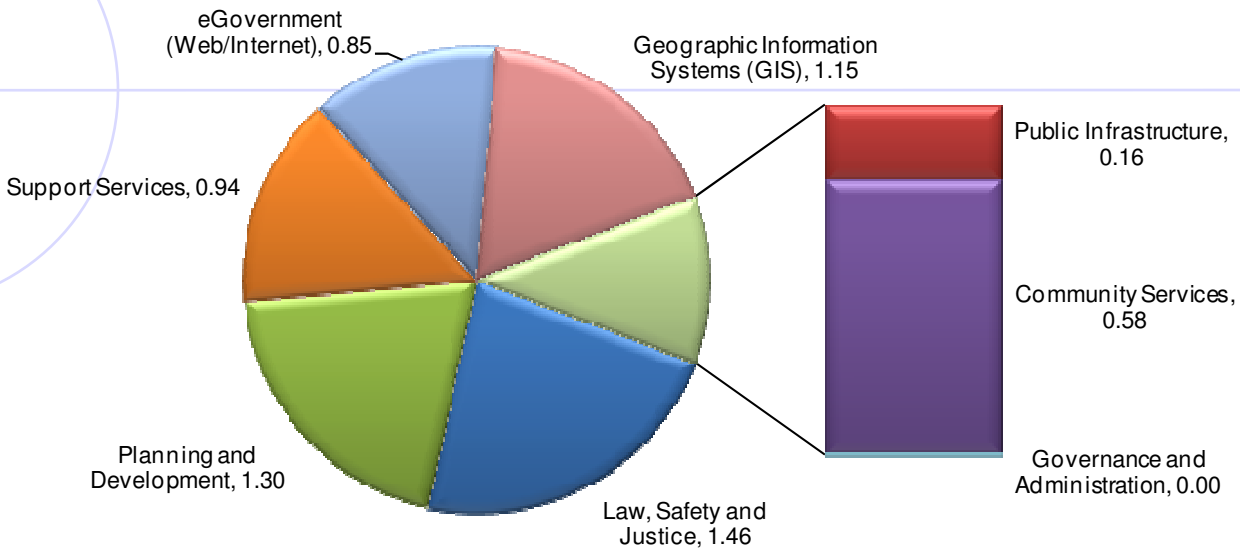
Finding	Impacts
Relative to PTI's target ranges[13], the City's *application support discipline* is understaffed *Fewer than 1.0 FTE supports eGovernment applications – an area that is expected to significantly expand with increasing demand for online transaction capabilities, access to public information, and web-driven information dissemination. Approximately 1.5 FTEs support public safety applications and just over 1.0 IS FTE supports all of the City's administrative applications, including human resources and payroll, finance and budget, document management, and grant and contract management[14]*	• Undermines Redmond's ability to achieve its IT vision • Erodes the City's ability to provide ongoing, long-term support for core business applications • Impairs ability of the business units to take full advantage of the capabilities inherent in many of the City's high-end applications



[13] PTI's target benchmarks are based upon IT spending, staffing, and inventory data collected from industry best practices, surveys, and local government clients since 1993. These target benchmarks are updated annually.

[14] The City also contracts for a minimal amount of professional services to support JDEwards' EnterpriseOne, the City's finance management software.

City of Redmond Current Application Support Effort Allocation by Application Area (FTEs)



Findings	Impacts
Information Services staff are insufficiently specialized *Some systems and programmer analysts support four or more application areas. Other IT activities are conducted by many staff, such as business application support, which is performed by 14 different IS staff members spread across IS's Support Services, Network Services, and Application Services Divisions. Additionally, some IS staff perform multiple, unrelated IT functions. At least one network analyst allocates time across every major IT discipline, spending 40 hours or less each year on many activities.*	• Continues service delivery inefficiencies • Confuses support services for business unit customers • Limits depth of expertise in IS staff
No single individual has responsibility for IT security *Although the City appears to have strong network security, the City has not formally designated any individual with IT security officer or policy-setting responsibilities.*	• Leaves IT security dependent on ad hoc efforts • Over time, increases likelihood of a security vulnerability
Some express concerns regarding IT support coverage *The lack of off-hours IT support presents significant risk for public safety, which operates on a 24/7 basis. Additionally, technology infrastructure maintenance conducted just outside of normal 8 to 5 business hours frequently disrupts business units that operate on non-standard schedules, such as Public Works or Finance and Information Services during budget season.*	• Limits support for business units that operate on non-standard schedules such as police and fire • Decreases operational efficiency

Applications

Applications center on the software used to support core business functions. PTI conducted 10 desk-side reviews of the City's major applications, and gathered additional application information through interviews and focus groups.

Users are satisfied with many aspects of business automation. However, the City's application portfolio still relies on custom and shadow applications in critical business areas.

Strengths

The following table describes the City's application strengths and associated impacts.

Finding	Impacts
Most major business functions have some level of automation *Users express satisfaction with Accela Wireless for mobile inspections, Springbrook for utility billing, Transman for fleet management, CLASS for parks and recreation management, and Hummingbird for some document management functions.*	• Enhances citizen services • Supports business operations • Streamlines business processes • Increases worker productivity
The City's website offers ePayment and other transactional capabilities *Stakeholders can purchase a number of residential and commercial permits online, as well as register and pay for recreational classes (e.g., music, arts and crafts).*	• Offers residents an option to make payments online • Enhances the customer experience • Reduces trips to City Hall
IVR supports inspections and utility billing *Integrated Voice Response (IVR) provides scheduling over the telephone for property inspections[15] as well as access to inspection status for city workers and citizens.*	• Enables efficient scheduling of property inspections • Provides easy access to inspection status for stakeholders
GIS is deployed via an industry-standard application *The City is standardized on ESRI for geographic information systems (GIS).*	• Provides a strong foundation for future integration with city applications • Leverages industry software with large market share and stable future

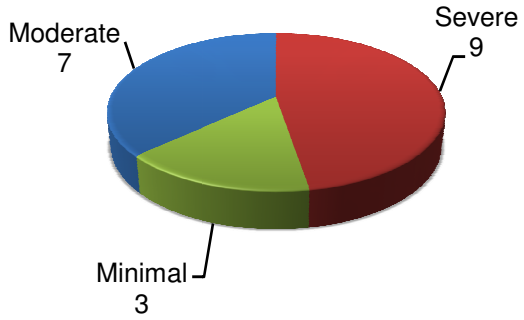
[15] Inspections also can be scheduled via the City's website.

Opportunities for Improvement

The following table describes the City's application portfolio challenges.

Finding	Impacts
The City's suite of software is not well architected and lacks integration *While the City has some level of software automation in most major business functions, staff still rely on point soultions (often built in Microsoft Access and/or Excel) and paper-based processes.*	• Inhibits efficient business operations and data sharing • Requires redundant data entry – increasing data errors
Two of the City's key applications face an uncertain future *Oracle acquired JDEdwards in 2005. It is unclear how long Oracle will continue to support JDEdwards' EnterpriseOne, the software package Redmond uses for finance management – or how costly an upgrade will be. Similarly, the City's permit management solution faces an uncertain future. Since Accela's purchase of Sierra's PERMITS Plus, Accela has begun to migrate users to its competing product, Automation. It is unclear how long Accela will continue support for the City's existing permitting application or what the cost of migration will be.*	• Risks the loss of vendor support for a critical city application • Threatens a significant, unplanned replacement or upgrade expense
The City's finance management software appears to be poorly implemented *JDEdwards' EnterpriseOne suffers from strong negative user perceptions throughout the City. While purchased by Redmond in 2004, the application was never fully installed. Business processes were not reviewed or revised to optimize use of the software. Users were not fully trained. The system lacks integration with other city applications and does not effectively leverage automated workflow functionality. Redmond purchased the human resource management module, but does not fully utilize it.*	• Frustrates users • Impedes timely and accuate financial processing • Increases the City's reliance on shadow systems and paper-based processes • Reduces value received from this high-end application
The City's permit management software is aging *PERMITS Plus is near end of life and lacks the capabilities newer software, such as dynamic workflow and flexible reporting, and suffers from a lack of integration with other city applications.*	• Contiues operational inefficiencies • Risks the loss of vendor support for a critical city application • Threatens a significant, unplanned replacement or upgrade expense

Finding	Impacts
Police computer aided dispatch and records management are operating on two separate software versions *The City currently operates two Spillman versions for police computer aided dispatch (CAD) and records management – FORCE and Summit 4.1 for Windows. FORCE operates via a command-line interface and is consequently very fast, but difficult to learn. Users of Summit Version 4.1 for Windows report an easier to learn, more user-friendly, but much slower interface. The City is in the process of upgrading Summit 4.1 for Windows to the current version – 4.6 – pending server and attendant operating system purchases.*	• Increases maintenance costs and labor effort • Complicates user training

Finding	Impacts
Many other critical areas have inadequate automation: – *Decision support* – *Emergency management* – *Grant and contract management* – *Human resource management* – *Internet* – *Intranet* – *Project accounting* – *Public safety scheduling and timekeeping* – *Work order/maintenance management* **Application Gap Analysis**  *PTI assessed 19 of the City's major applications, evaluating functionality, ease of use, level of implementation, integration, and reporting, as well as the level of vendor support and currency of the software. City users indicate that the large majority (16 of 19) of the City's core business applications suffer from moderate or severe gaps in functionality, as illustrated in the following figure (Appendix D provides further detail). This further supports PTI's previous finding that the City lacks a robust process for identifying, prioritizing, and investing in IT solutions.*	• Requires staff to rely on shadow applications (e.g., point solutions, often built in Microsoft Access and/or Excel) and paper-based processes to make up for deficiencies in (or a lack of) current automation • Results in redundant data entry • Exacerbates data integrity issues • Fosters silos for information storage and retrieval

Finding	Impacts
Redmond lacks a citywide strategy for document management *Document management is underutilized. Currently, the City has deployed Hummingbird only for the City Clerk's Office and Oracle for the Police Records Division.*	• Maintains dependency on paper-based processes • Runs counter to "go green" initiatives • Complicates compliance with record retention, archival, and destruction mandates • Severely limits opportunities to automate workflow and streamline business processes • Impedes ability to effectively address public disclosure requests

While Redmond's technical environment is largely optimized – and standardized across the City – concerns still surround mobile computing, bandwidth, and the duplication of data centers.

Technical Infrastructure

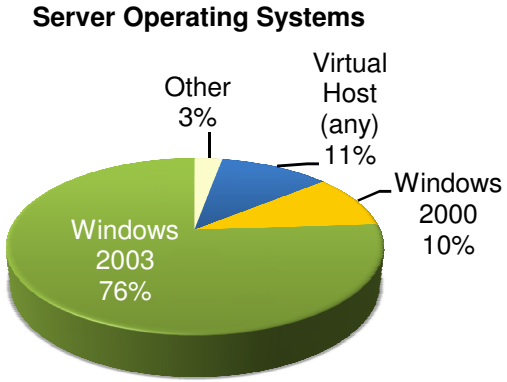
Technical infrastructure refers to the hardware, networks, databases, and operating systems that support the City's applications. An organization's technical infrastructure provides the critical foundation for connectivity and processing power.

Strengths

The following table describes technical infrastructure areas of strength and associated impacts.

Finding	Impacts
The City is leveraging emerging telephony, server, and server storage technologies *Voice over IP (VoIP)[16] has been implemented in City Hall, FS 11, 12, 13, 18, Medic 23, 35 and various other locations. Over 63% of the City's servers are virtualized[17], averaging eight virtual servers per physical server. Additionally, the City is taking advantage of storage area networks (SAN)[18] for server storage management.*	• Reduces telephony expenses • Increases infrastructure efficiences • Reduces infrastructure maintenance costs and labor effort • Reduces server-related "carbon footprint"

[16] Voice communication over the Internet.
[17] The use of software to emulate multiple server environments on one physical server.
[18] A high-speed, special-purpose network that interconnects data storage devices with associated servers , enabling enhanced storage management, backup and application uptime.

Finding	Impacts
Redmond employs robust network security for external threats *Redmond's dual firewalls, gateway, and spam filtering solution shield the City's network from potentially harmful viruses – ensuring City technology assets continue functioning and important data remains inaccessible to unauthorized parties.*	• Ensures strong defense against viruses, and spam originating outside of the City's core network
The City regularly monitors and tests its technology infrastructure assets *The City employs infrastructure monitoring tools to monitor data center environmental controls, server load, power consumption, and physical security. The City also regularly tests emergency IT backup power.*	• Ensures the City is positioned to continue critical operations during and/or after a power loss • Protects the City's IT infrastructure against physical securty threats • Ensures the City's IT infrastructure operates efficiently – minimizing maintenance costs and labor effort
The City's server and personal computer operating systems are standardized *The City's PCs are standardized on Windows XP and over 75% of its servers are standardized on Windows 2003.*  	• Simplifies PC support • Reduces infrastructure maintenance costs

Opportunities for Improvement

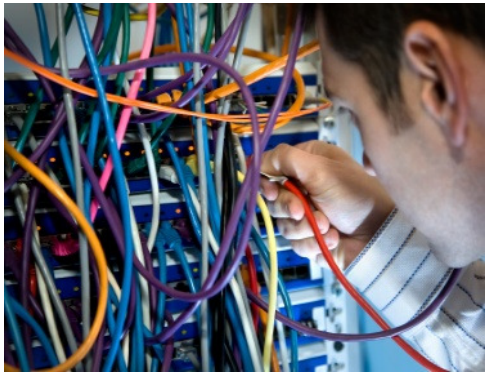
The following table describes challenges related to the City's technical infrastructure.

Finding	Impacts
The City's wide area network suffers from inadequate bandwidth *Redmond's wide area network is unable to support high bandwidth applications such as digital video. Additionally, some edge locations such as Redmond Ridge and fire stations 13, 14, 16 and 18 experience sluggish response due to inadequate throughput. These problems are exacerbated by the lack of a file transfer service and limitations on file transfer size.*	• Limits transfer of larger files • Impedes worker productivity • Leaves the City poorly positioned for future high bandwidth applications such as digital video
The City operates two data centers with redundant equipment *The City operates two data centers in the police building (one for police and one for all other city departments), which require redundant data storage infrastructure, monitoring controls, backup power, and environmental controls.*	• Increases expenses and labor effort devoted to supporting the technical environment • Increases the City IT-related "carbon footprint"
The City lacks a backup data center *Although backup tapes are stored offsite, the City does not maintain an emergency backup data center to resume municipal operations in the event of a major catastrophe or outage that renders the data centers in the Police building inoperable.*	• Increases risks surrounding operations during and/or after a disaster or emergency • Potentially decreases Redmond's ability to provide needed services – especially during an emergency
Some mobile workers lack field connectivity *While building inspectors now have technologies enabling mobile inspections and the ability to remotely access and download inspection data, many other city workers in public works, fire, and parks and recreation that could benefit from similar mobile technologies continue to work without them.*	• Decreases operational efficiency and worker productivity • Limits work schedules and locations • Runs counter to the City's "green" intiatives

* * * * *

After validating these findings in a series of workshops and follow-up interviews, PTI facilitated the development of citywide IT goals and strategies that build upon the Redmond's existing strengths and address the opportunities for improvement identified in this chapter. Chapter 3 presents this new strategic IT direction for the City of Redmond.

PTI



Chapter 3
Strategic Direction

This chapter charts a strategic direction for information technology at the City. It outlines a core set of IT goals and attendant strategies to guide the deployment of technology – aligned with the City of Redmond's service imperatives.

3

IT Mission and Goals

The City recognizes that IT is an essential tool for helping Redmond enhance services, streamline operations, and make staff more effective and efficient. During the course of this planning engagement, PTI and select city stakeholders developed the following mission for citywide IT:

This plan identifies specific goals, strategies, and related IT projects that support the City's IT mission and budget priorities.

City of Redmond IT Mission

Provide technology solutions and services to support efficient delivery of city services

In support of this mission, city stakeholders also identified the following IT goals:

City of Redmond IT Goals

1	**Accessibility and Accountability**	Deploy technology that makes government accessible and accountable to constituents and business partners
2	**Regional Cooperation and Partnership**	Seek regional technology partnerships that provide benefit to the City
3	**Streamlined Operations**	Use information technology to streamline business processes, enhance city operations, and support sustainability
4	**IT Service and Decision Making**	Align IT services and decision making with business priorities, customer needs, and best practices
5	**Technical Infrastructure**	Maintain a secure, reliable and cost effective technology infrastructure

Each of these goals is designed to support one or more of the Redmond's budget priorities. Each IT goal is in turn supported by one or more IT strategies. The remainder of this chapter details the City's five IT goals and associated IT strategies.

Goal 1: Accessibility and Accountability

Deploy technology that makes government accessible and accountable to constituents and business partners

The following presents supporting strategies for this goal.

Enhance use of the City's website for delivery of government information and services

Citizens and businesses increasingly utilize the Internet to conduct business and acquire information. Accordingly, citizen and business expectations for information and service availability via the Web will continue to rise. Providing a customer-centric website layout that facilitates navigation to key services (e.g., purchasing a license, applying for a building permit, investigating a utility bill) will help address the increasing technological expectations of Redmond's educated and tech-savvy populace. It extends Redmond's ability to offer the support of a "virtual City Hall" that provides information and services without requiring physical interaction with Redmond's business units.

Support public access to the City via the Internet

Online communication and service/product transactions all require connection to the Internet. As citizens further integrate technology and Internet communication into their daily lives, they increase the need for publicly accessible Internet connections where they live, shop, and spend leisure time. Areas that offer public access to the Internet attract these users and – through the selling of related products and services – help drive local economic growth. In line with one of the mayor's key goals, this strategy asks Redmond to investigate investment in publicly accessible wireless networks that attract users and help stimulate local economic growth.

Align reporting and decision support systems with budget priorities and performance measures

Citizens and business partners place continued emphasis on accountable, transparent government. In addition, City management requires better access to trended information to monitor performance, assess progress toward stated goals, and inform decision making. To support these demands, this strategy emphasizes the need for systems capable of analyzing and presenting meaningful indicators drawn from disparate sources – in a timely and accurate fashion.

The following implementation projects will help the City realize these strategies and achieve its accessibility and accountability goal.

Goal 1: Accessibility and Accountability	Implementation Projects
	**1.1 Redesign the City's website** **1.2 Deploy document management citywide** **1.3 Evaluate and test business intelligence software** **1.4 Investigate options for wireless access throughout the City**

Participating in regional partnerships leverages investments made by other agencies – limiting the City's risk exposure and enhancing services to stakeholders.

Goal 2: Regional Cooperation and Partnership

Seek regional technology partnerships that provide benefit to the City

The following presents supporting strategies for this goal.

Build on existing and develop new IT partnerships that enhance service and reduce costs

Regional services and data sharing partnerships offer the potential to enhance citizen services and realize economies of scale. For example, initiatives such as law and justice data exchange help cities and counties rapidly share public safety information across jurisdictional boundaries. This strategy encourages Redmond to participate in these partnerships when they improve services and/or save money.

The following implementation projects will help the City realize these strategies and achieve its regional cooperation and partnership goal.

Goal 2: Regional Cooperation and Partnership	Implementation Projects
	**2.1 Participate in the System Enhanced Network Design (SEND) initiative** **2.2 Evaluate regional partnership opportunities for delivery of online services**

Goal 3: Streamlined Operations

Use information technology to streamline business processes, enhance city operations, and support sustainability

The following presents supporting strategies for this goal.

Fill business automation gaps

Redmond depends heavily on its automation to efficiently conduct a broad mix of services and internal functions. To maximize efficiency – especially in an economy demanding that the City do more with less – this strategy invests in robust software packages capable of meeting Redmond's business needs. In the near term, these applications include permit management, maintenance management, GIS and intranet. Once the City acquires robust automation packages, it should pursue application and data integration to further enhance services.

Emphasize use of commercial software

Though there may always be a need for a limited amount of software development, the challenges associated with creating and maintaining custom applications often diminish their long-term capability and cost-effectiveness. When analyzing automation needs, the City should favor packaged solutions over custom development. Software products exist for a host of core municipal functions – and offer significant benefits that include:

- Software vendors who specialize in distinct local government service areas
- Regular software updates that keep pace with technology, fix bugs and enhance the application
- Broad input from user groups that drives the ongoing development of the software

- Access to “best practices” business processes engineered into the product
- Extensive data integration capabilities with other commercial software packages

Retire custom applications and shadow systems

In concert with implementing new software, the City should aim to diminish its reliance on custom applications and individual point solutions. Accordingly, this strategy helps simplify Redmond’s application architecture, diminish support requirements, enhance integration, and expedite new employee training.

Empower staff with access to the information and services they need

Many employees primarily deal with accessing, analyzing, and relaying information. Expediting those processes can help employees conduct their work more efficiently. Accordingly, this strategy focuses on providing an easy to use and intuitive method for accessing departmental and citywide information. While addressed in part by commercial automation, dynamic, collaborative intranets also are capable of meeting these needs by providing common information (e.g., policies, procedures, contact information), collaboration capability (e.g., document sharing and viewing across the organization), and searchable knowledge bases (e.g., Wikis). Such tools can also help alleviate administrative workload associated with human resource functions (e.g., access to pay stubs, changing benefits packages).

The following implementation projects will help the City realize these strategies and achieve its streamlined operations goal.

Goal 3: Streamlined Operations	Implementation Projects
	**3.1 Implement an improvement program for the City’s finance and HR management system** **3.2 Evaluate and implement an enhanced permitting system** **3.3 Migrate to the current version of the City’s police dispatch and records management system** **3.4 Procure and implement a maintenance management system** **3.5 Integrate GIS and other databases with business applications** **3.6 Enhance the City’s intranet and collaboration tools**

Goal 4: IT Service and Decision Making

Align IT services and decision making with business priorities, customer needs, and best practices

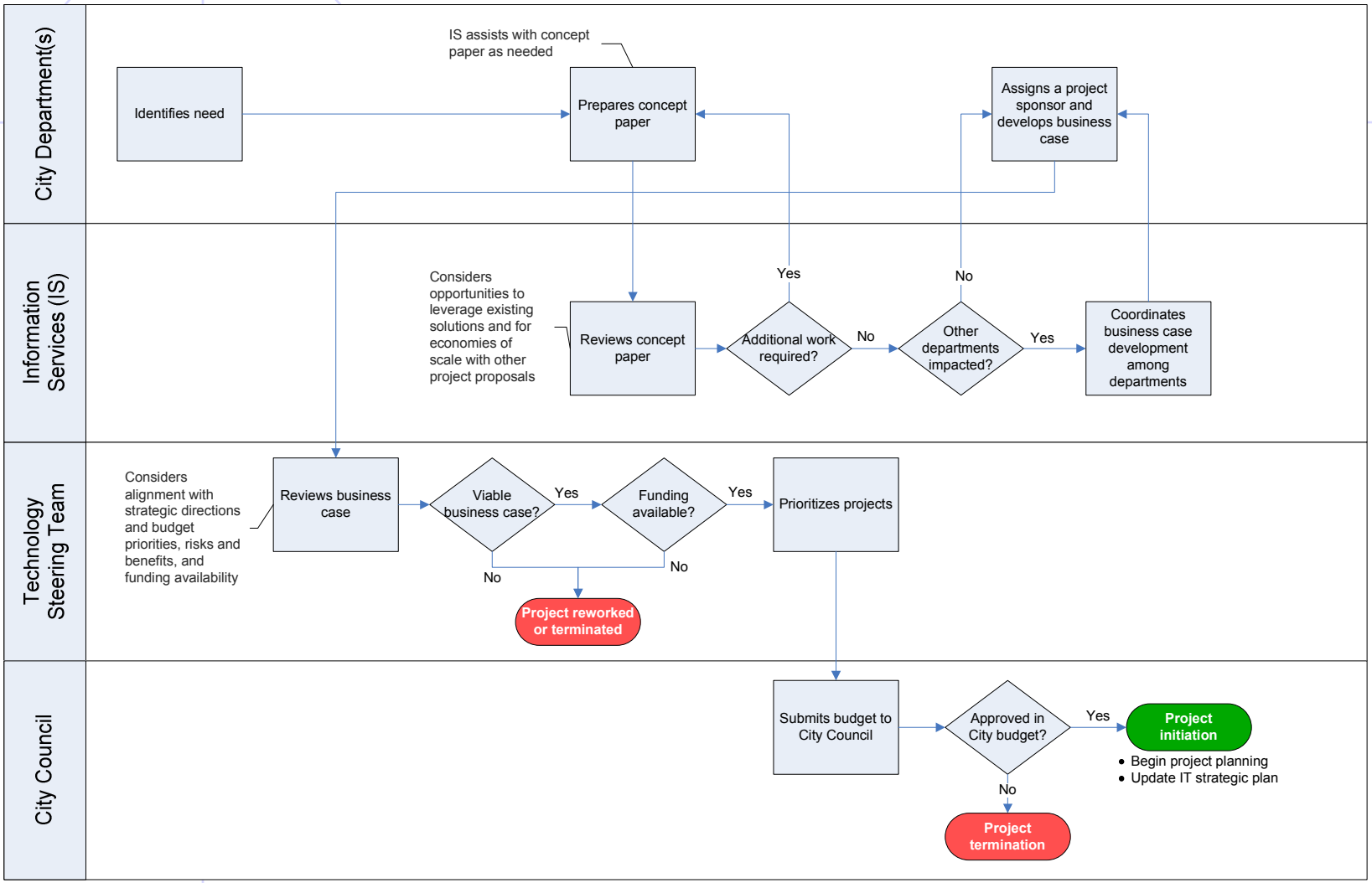
The following presents supporting strategies for this goal.

Redmond should adopt a structured, citywide method (detailed on the following page) for making and communicating major IT investment decisions.

Foster a citywide approach to IT decision making and setting priorities

To help the City make the best use of its IT resources, Redmond should adopt a structured, citywide method (detailed on the following page) for making and communicating major IT investment decisions. Part of this process involves clearly defining stakeholder roles and responsibilities, decision making policies and processes, and prioritization criteria. The City must also establish tools (e.g., concept paper, business case) to support the analysis and prioritization of potential IT investments and ensure decisions are fully supported by an appropriate business impact assessment and financial analysis. A more formal IT governance model will align limited IT resources with the City's core business priorities.

Recommended IT Decision Making Model



Concept Paper

- **Less formal (e.g., one to three pages)**
- **Allows decision makers to explore ideas without placing too much of a burden on staff**
- **Includes:**
  - Brief statement of problem
  - Brief description of proposed solution or investment
  - High-level cost estimate
  - Identification of impacted stakeholders and business processes
  - Labor requirements
  - Benefits
  - Alignment with City and IT Strategic Plans

Business Case

- **More formal**
- **Requires thorough financial analysis**
- **Includes:**
  - Brief investment description
  - Business assessment:
    - ✓ Description of existing situation and problem
    - ✓ Description of proposed changes
    - ✓ Other alternatives considered
    - ✓ Description of proposed technology
    - ✓ Impacts on other business units
    - ✓ Measurements and major deliverables
    - ✓ Project organization
    - ✓ Disposal of old technology
  - Financial impacts:
    - ✓ One-time costs
    - ✓ Ongoing costs
    - ✓ Cost/benefit analysis, including return on investment
    - ✓ Intangible benefits
    - ✓ Risk assessment
    - ✓ Funding sources
  - Staffing impacts:
    - ✓ Implementation labor requirements
    - ✓ O&M labor requirements

Manage IT service to specific performance objectives

Redmond should implement a formal approach to IT service management, including training IT staff in an IT service management methodology and increasing the availability of IT support during non-standard operating hours. Once a service methodology is in place and staff are trained accordingly, the City can monitor and report on related performance metrics (e.g., tier 1 call resolution rate) to identify and build on areas of strength, as well as address opportunities for improvement. Managing to specific performance targets enables IS to objectively analyze its performance and address areas of need.

Organize the Information Services Division to optimize quality and cost-effectiveness of service delivery

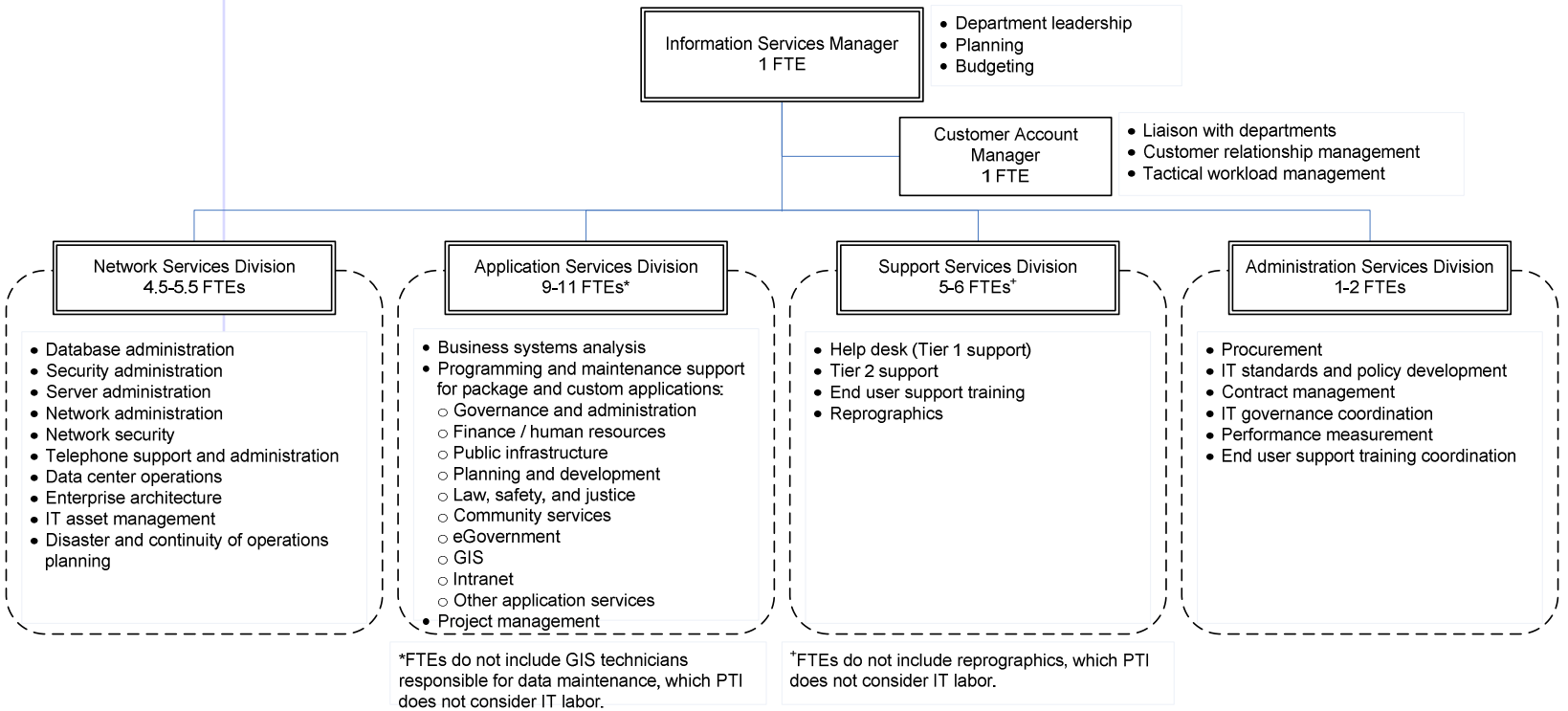
This strategy involves formalizing the roles and responsibilities within Information Services around four primary IT *disciplines* and staffing those areas according to best practices. It reallocates IT staff among Information Services' three divisions – Network Services, Application Services, and Support Services – and adds an Administrative Services division. It migrates reporting relationships to IS for the four FTEs currently performing *customer*, *infrastructure*, and *application support* for other city departments, and collocates *application support* personnel in the business units as appropriate (e.g., Police). Centralizing

IT staff reporting relationships within IS will help further coordinate and align IT activities across the City.

In addition, this plan recommends five new IS staff – three to focus on Redmond's *application support discipline*, one to serve as a customer account manager, and one to further support Network Services (particularly database administration). Combined with the transition of four business-unit IT staff to IS, these additions will bring Redmond's level of IT staffing in line with its IT vision and help the City realize service economies of scale, establish a coordinated IT workgroup, and improve services to business units.

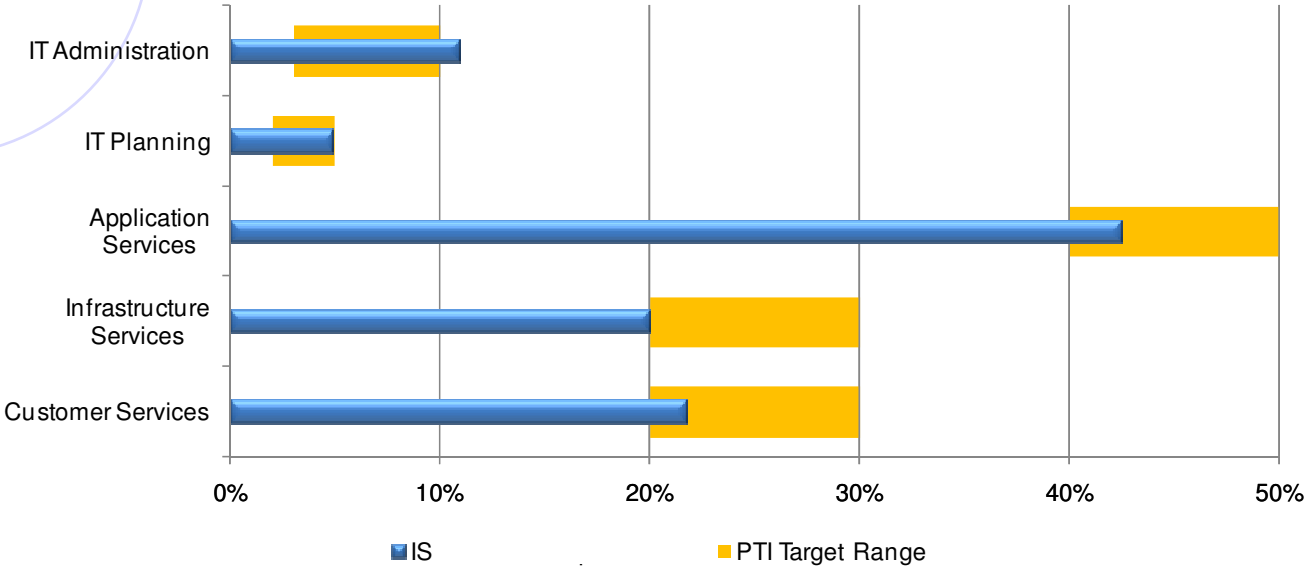
The following organizational model does not reflect the organizational structure of the City's Information Services today. Rather, it presents PTI's recommendation. Ultimately, the City's will need to make the final decision on reorganization and reallocation of IT staff.

Recommended IS Organization Model



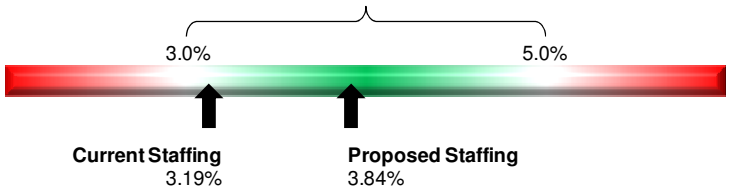
As the charts below indicate, adopting PTI's mid-range recommendations[19] for FTE additions and staffing allocation more closely aligns the City's IT labor with PTI's target ranges. The largest increase comes in the *application support discipline* – ensuring the City maximizes its software investment and provides requisite support to the business units.

City of Redmond Proposed IT Staffing Allocation Relative to PTI's Target Ranges



Current and Proposed Staffing Levels[19]

PTI target range for IT-titled staffing as a percentage of overall city staffing



[19] Assumes the City staffs in the middle of ranges suggested in the Recommended IS Organization Model on the previous page.

The following implementation projects will help the City realize these strategies and achieve its IT service delivery and decision making goal.

Goal 4: IT Service and Decision Making	Implementation Projects
	**4.1 Implement a formal approach to IT service management** **4.2 Establish an IT steering team and implement a structured IT decision making model** **4.3 Align the Information Services (IS) organization with best practices** **4.4 Develop a tactical IS work plan**

Goal 5: Technical Infrastructure

Maintain a secure, reliable and cost-effective technology infrastructure

The following presents supporting strategies for this goal.

Redmond's technical infrastructure – though highly optimized – can still benefit from additional investment in consolidation and security hardening.

Consolidate core infrastructure

The advent of server virtualization software allows one physical server to host multiple applications – reducing the number of required physical servers by 25% to 75%. While redundant hardware will always be a necessity for mission critical situations, this strategy focuses on maintaining optimal levels of physical and logical (i.e., virtualized) servers. In concert with public safety IT guidelines, this strategy also merges the City's main data center and Police data center (both currently in the Police building) to reduce the duplication of backup power capacity, environmental controls and data storage infrastructure. Maintaining less core infrastructure simplifies the City's technical environment and reduces support resources and environmental impacts associated with maintaining that environment.

Position the City's network for future capacity needs

With the growth of network-based communications (e.g., VoIP, email, instant messaging), data networks are facing a barrage of bandwidth-hungry applications that erode network speed and response time. Though Redmond's core fiber network has ample bandwidth, some of the City's off-campus locations (e.g., Redmond Ridge and fire stations 13, 14, 16, and 18) require greater data throughput to improve application/data request response times. This strategy asks Redmond to continue to monitor its entire network and invest in appropriate enhancements as application data needs increase. Providing appropriate bandwidth ensures applications that require network resources operate at acceptable speeds at all locations and facilitate employee productivity.

Improve field and remote access for city workers

As more technology-savvy employees enter the workforce, the City will see increasing expectations from staff for mobile computing and remote access. While a completely virtual office environment may be years away (or never materialize at all), this strategy helps Redmond improve the productivity of mobile workers by investing in laptops and broadband connection devices that enable mobile workers to access City applications and data while in the field. This strategy also supports the City's "clean and green" budget priority by diminishing travel to and from office locations for accessing applications or data.

Ensure appropriate security for IT systems

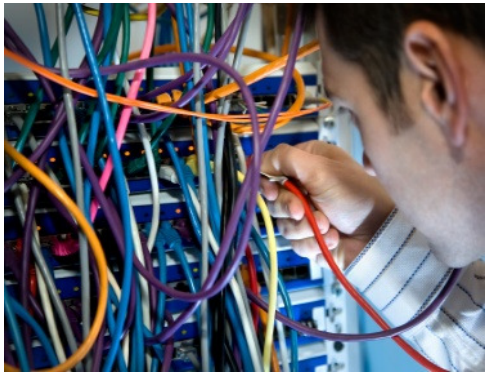
Redmond's "open government" philosophy does not necessitate unsecured network access at City facilities. This strategy puts in place enhanced physical (e.g., locked doors/cabinets) and logical (e.g., network structure, passwords) IT security policies, practices, and tools. Data assets (e.g., customer/citizen information, City documents) should be categorized by security risk level and protected appropriately. This strategy also involves conducting third party annual security audits and triennial security assessments to keep Redmond's infrastructure and computing practices on guard against the ever-changing IT risk environment.

The following implementation projects will help the City realize these strategies and achieve its technology infrastructure goal.

Goal 5: Technical Infrastructure	Implementation Projects
	**5.1 Consolidate data centers** **5.2 Increase wide area network bandwidth** **5.3 Deploy field and remote access for mobile workers** **5.4 Develop a formal disaster recovery plan** **5.5 Develop a citywide IT security plan**

* * * * *

Chapter 4 presents an implementation plan for the key projects listed above.



Chapter 4
Implementation Plan

This chapter outlines a four-year work plan to implement key projects aimed at improving city services and streamlining business operations. This chapter also summarizes associated costs and presents an attendant implementation timeline. It concludes by outlining several factors that will be critical to the successful implementation of this strategic plan.

4

Implementation Projects

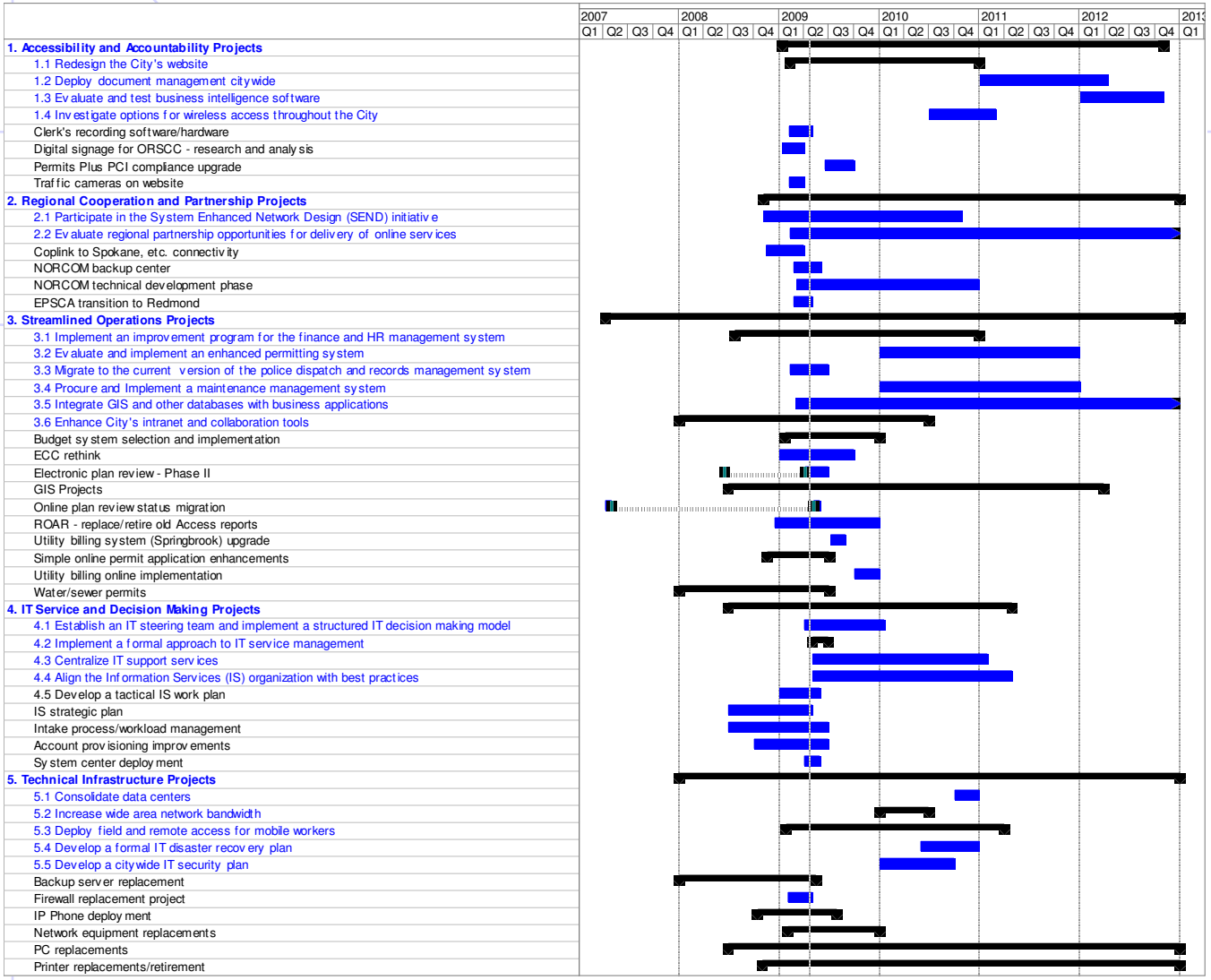
Based on the IT strategies defined in Chapter 3, the City and PTI worked in partnership to identify a series of key implementation projects aimed at improving the City's technology position associated with its five IT goals:

- Accessibility and Accountability
- Regional Cooperation and Partnership
- Streamlined Operations
- IT Service and Decision Making
- Technical Infrastructure

In addition to the strategic projects, many tactical projects are required to support and maintain the City's IT infrastructure and assets. The Gantt chart on the following page presents a projected timeline for the strategic implementation projects outlined in this strategic plan (listed in blue), integrated with the City's planned operations and maintenance (O&M) and non-capital projects (listed in gray). The timeline is presented in calendar years.

It is important to note that much work already is in progress, as indicated by timelines beginning prior to the publication date of this strategic plan.

Proposed Implementation Timeline



The City will need to periodically review and make adjustments to this implementation timeline – based on resource constraints, changing business needs and priorities.

Implementation Project Costs

The cost estimates outlined in this section provide Redmond with budget guidelines for the strategic implementation projects listed above. PTI developed these cost estimates based on industry knowledge, best practices, market research, and average vendor costs. The scope of this study did not include the definition of hard dollar benefits, or a return on investment analysis.

One-time and Recurring Costs

The following table presents one-time and recurring cost estimates for the **strategic implementation projects only**. In some instances, significant differences exist between the low-end and high-end estimates. In general, low-end estimates tend to reflect reduced scope, lower-cost materials (e.g., software, hardware), and a greater reliance on internal labor. High-end estimates reflect a broader scope, higher-cost components and software, larger labor requirements, and generally include external consulting for all or some of a project's implementation. Costs do not include current city expenditures or already budgeted dollars, unless noted otherwise.

One-Time and Recurring Project Cost Estimates

		One-Time		Recurring	
		Low	High	Low	High
1. Accessibility and Accountability Projects					
1.1	Redesign the City's Website*	$ 196,000	$ 300,000	$ -	$ -
1.2	Deploy document management citywide	$ 210,000	$ 339,000	$ 4,000	$ 8,000
1.3	Evaluate and test business intelligence software	$ 2,000	$ 55,000	$ -	$ 5,000
1.4	Investigate options for wireless access throughout the City	$ 44,000	$ 70,000	$ -	$ -
2. Regional Cooperation and Partnership Projects					
2.1	Participate in the System Enhanced Network Design (SEND) initiative	$ 107,000	$ 140,000	$ 10,000	$ 12,000
2.2	Evaluate regional partnership opportunities for delivery of online services	$ -	$ 26,000	$ -	$ -
3. Streamlined Operations Projects					
3.1	Implement an improvement program for the City's finance and HR management system	$ 639,000	$ 1,209,000	$ 21,000	$ 88,000
3.2	Evaluate and implement an enhanced permitting system	$ 465,000	$ 775,000	$ 56,000	$ 111,000
3.3	Migrate to the current version of the City's police dispatch and records management system	$ -	$ -	$ -	$ -
3.4	Procure and implement a maintenance management system	$ 252,000	$ 465,000	$ 8,000	$ 30,000
3.5	Integrate GIS and other databases with business applications	$ -	$ 147,000	$ -	$ -
3.6	Enhance the City's intranet and collaboration tools	$ 78,000	$ 186,000	$ 10,000	$ 14,000
4. IT Service and Decision Making Projects					
4.1	Establish an IT steering team and implement a structure IT decision making model	$ -	$ 25,000	$ -	$ -
4.2	Implement a formal approach to IT service management	$ 48,000	$ 78,000	$ 16,000	$ 16,000
4.3	Centralize IT support services	$ 14,000	$ 21,000	$ -	$ -
4.4	Align the Information Services (IS) organization with best practices	$ -	$ 127,000	$ 552,000	$ 552,000
4.5	Develop a tactical IS work plan	$ -	$ 18,000	$ -	$ -
5. Technical Infrastructure Projects					
5.1	Consolidate data centers	$ -	$ 21,000	$ -	$ -
5.2	Increase wide area network bandwidth	$ 28,000	$ 36,000	$ 24,000	$ 29,000
5.3	Deploy field and remote access for mobile workers	$ 24,000	$ 70,000	$ 6,000	$ 18,000
5.4	Develop a formal IT disaster recovery plan	$ -	$ 118,000	$ -	$ -
5.5	Develop a citywide IT security plan	$ 50,000	$ 80,000	$ -	$ 10,000
	Total Cost	**$ 2,113,000**	**$ 4,236,000**	**$ 707,000**	**$ 893,000**

*Includes already budgeted dollars.

Note: Costs are rounded to nearest thousand dollars and do not account for inflation

Critical Success Factors

To assist the City in implementing PTI's recommended projects, PTI developed the following critical success factors:

- **Key decision makers, such as the City Council, elected officials, and other managers must "buy in" to the projects**
- **Business-based benefits must be clearly articulated and effectively communicated to all stakeholders**
- **Business processes must be reviewed and revised to leverage technology investments and best practices**
- **Measures must be implemented to ensure ongoing monitoring and course correction of plan progress**
- **Sufficient staffing and funding resources must be allocated to see projects through to completion and support ongoing operations**

Appendix A
List of Participants

Over 80 city stakeholders – including city executives, managers, IT professionals, and end users – contributed to this planning effort through interviews, focus groups, and other data collection efforts. The following table lists these participants:

Name	Position/Title	Department/Division
Ralph Ashmore	Captain	Fire
Joe Averill	Construction Inspection Manager	Public Works
Deb Ayrs	Deputy Chief	Fire
Kim Bacchus	Human Resources Administrative Coordinator	Human Resources
Mark Bailey	Network Services Manager	Finance and Information Services
Mike Bailey	Finance Director	Finance and Information Services
Cathy Beam	Principal Planner	Planning and Community Development
Sandra Bettencourt	Division Manager	Parks and Recreation/Recreation
Judd Black	Planning Manager	Planning and Community Development
Daniel Bolong	Support Services Specialist	Finance and Information Services
Michelle Brown	Crime Analyst	Police
Luis Baez	Buyer	Finance and Information Services
Sandra Cantelon	Financial Analyst Associate	Finance and Information Services
Jane Christenson	Assistant to the Mayor	Executive
Jeff Churchill	Planner	Planning and Community Development
Christine Clarke	Financial Administrative Manager	Public Works/Operations
Kelly Cochran	Management Analyst	Public Works/Administration
Sheila Iturriaga Colyer	Accounting Manager	Finance and Information Services
Phil Condit	Geographic Information Services Technician	Finance and Information Services
Karen Conrad	Webmaster	Executive
Tim Cox	Parks Planning Management	Parks and Recreation
Rich Day	Communications Supervisor	Police
Dawn DeLoach	Data Analyst	Fire

Name	Position/Title	Department/Division
Jeff Dendy	Senior Engineer	Public Works
Kim Dietz	Senior Planner	Planning
Elaine Dilley	Groundwater Technician	Public Works
Kelly Dunn	Paramedic	Fire/Advanced Life Support
Helen Eckhart	Revenue Manager	Finance and Information Services
Melissa Faga	Geographic Information Services Manager	Finance and Information Services
Malisa Files	Financial Planning Manager	Finance and Information Services
Steve Fiore	Partner Technology Specialist	Microsoft
Stephen Fischer	Senior Planner	Planning and Community Development
Shawn Fitzpatrick	Support Services Supervisor	Police
Jan Fuller	Miscellaneous	Police
Tim Fuller	Chief	Fire
Kiran Gadepalli	Senior Systems Analyst	Finance and Information Services
Larry Gainer	Assistant Chief	Police
Ron Grant	Assistant Director	Public Works
Marta Gronlund	Communications Manager	Communications-Executive
Mike Haley	Project Manager	Public Works
Steve Harris	Police Chief	Police
Carol Hartwell	Fire Support Administrative Assistant	Fire
Barb Heriot	Support Services Manager	Finance and Information Services
Linda Hermanson	Information Services Manager	Finance and Information Services
Steven Hitch	Stormwater Engineer	Public Works
Jairid Hoehn	Recreation Application Specialist	Parks and Recreation
Gary Jenson	Technical Systems Coordinator	Police
Ston Johnson	Support Services Specialist	Finance and Information Services
Jeanne Justice	Engineering Supervisor	Public Works

Name	Position/Title	Department/Division
Kevin Klein	Geographic Information Services Technician	Finance and Information Services
Heidi Lamb	Department Coordinator	Public Works
Craig Larsen	Parks Director	Parks and Recreation
Kelsey Larson	Assistant Planner	Planning and Community Development
Keith Laycock	Network Analyst	Finance and Information Services
Carol Lewis	Plans Examiner	Planning and Community Development
Jill Long	Senior Financial Analyst	Finance and Information Services
Karen Luhrs	Senior Programmer/Analyst	Finance and Information Services
John Marchione	Mayor	Executive
Terry Marpert	SIR	Planning and Community Development
Liz McAnlis	Deputy City Clerk	City Clerk
Eric McConaghy	Associate Planner	Planning and Community Development
Michelle McGehee	City Clerk	Finance and Information Services
Joe McGrath	Senior Financial Analyst	Finance and Information Services
Jack Myer	Senior Engineering Technician	Public Works
Rob Nepon	Geographic Information Services Technician	Finance and Information Services
Tom Norton	Battalion Chief	Fire
Rob Odle	Planning Director	Planning and Community Development
Debra Pelletier	Program Service Manager	Parks and Recreation
Laura Pendergraft	Business License Coordinator	Finance and Information Services
Mark Pratt-Barlow	Senior Systems Analyst	Finance and Information Services
Carol Radforth	Administrative Specialist	Public Works
Andy Rheaume	Senior Planner	Public Works
Nicole Ridgeway	Support Services Specialist	Police
Miriam Radtke	Network Services Manager	Finance and Information Services
Kerry Sievers	Human Resources Director	Human Resources

Name	Position/Title	Department/Division
Sue Simpson	Permit Center & Plan Review Supervisor	Planning and Community Development
Corey Smith	Applications Manager	Finance and Information Services
Paul Smith	Firefighter	Fire
Cheryl Spotts	Lead Communications Dispatcher	Police
Carol Stewart	Senior Support Analyst	Finance and Information Services
Kathy Sturges	Senior Financial Technician	Finance and Information Services
Zeke Taney	Support Services	Finance and Information Services
Scott Thomasson	Utility Engineering Manager	Public Works
Gail Whitley	Payroll Supervisor	Finance and Information Services
Ken Wong	Teen Programs Director	Parks and Recreation
Kelley Wood	Treasury Manager	Finance
Sandy Yeager	Management Analyst	Public Works
Mary Yelanjian	Arts Administrator	Parks and Recreation

Appendix B
Business Function Model

A business function model identifies the activities an organization performs to meet its business and service objectives. Each of the activities shown in a business function model becomes a potential candidate for automation. The model, therefore, serves as a template for driving an organization's overall approach to automating its business functions.

It is important to distinguish between a function model and an organization model. An organization model depicts an organization's structure, typically in a hierarchical fashion. A business function model depicts *what* an organization does, independent of *who* does it in the organizational structure.

Business functions tend to be much more stable than organizational units. Organizations typically change over time to accommodate changes in how services are delivered. The business functions themselves remain relatively unchanged, unless the organization significantly alters its mix of services.

Pacific Technologies Inc. worked with members of Redmond's project team to develop a business function model for the City. PTI then utilized this model to drive the development of an ideal application architecture for the City of Redmond, presented in Appendix D.

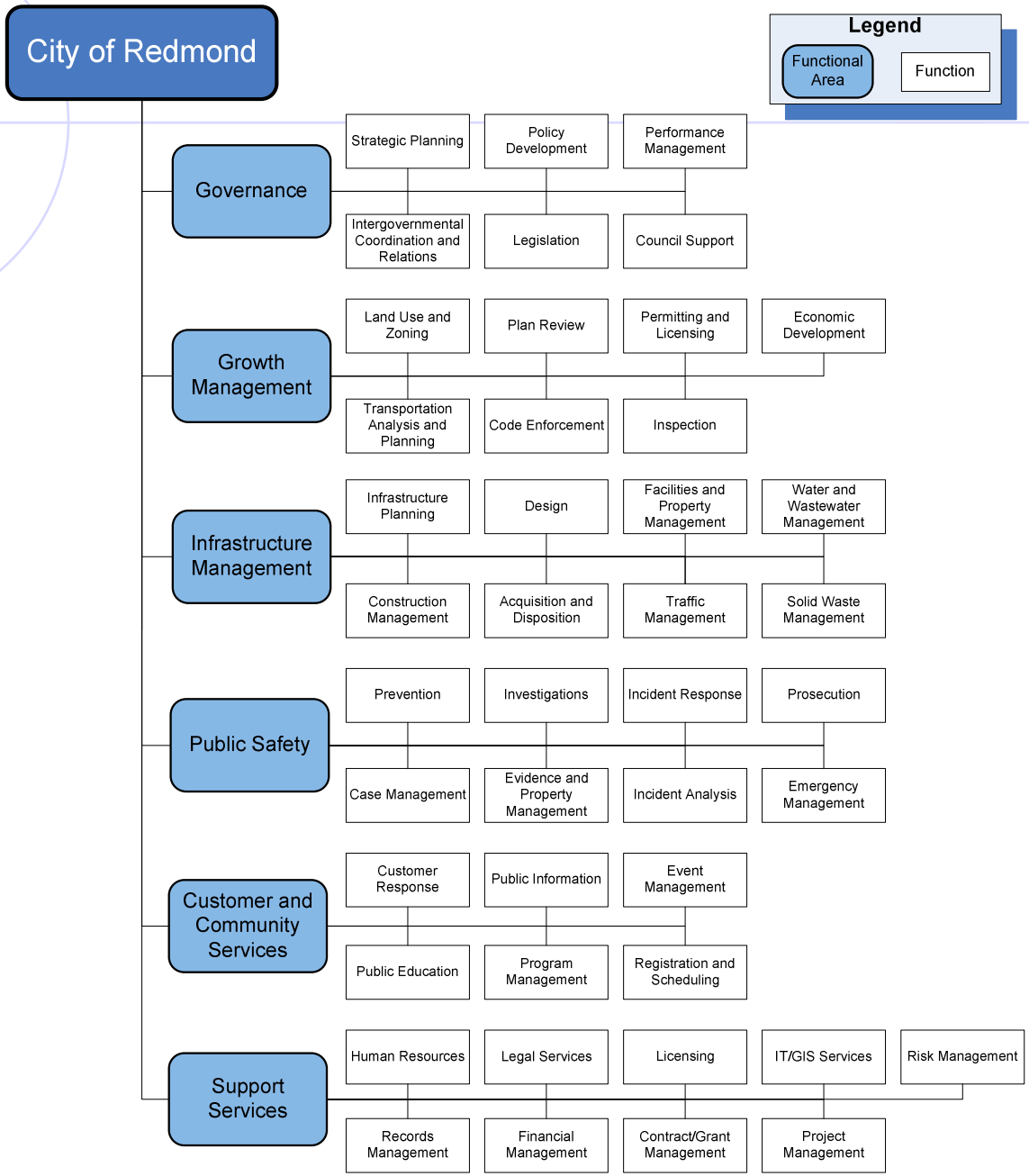
Business function models contain two primary components:

- **Functional Areas** – the major categorization of all tasks required to conduct business (e.g., Public Safety)
- **Functions** – a group of ongoing activities, which together completely support one functional area (e.g., Incident Response)

The diagram on the following page depicts a function model of the City of Redmond's business. The "roundtangles" represent functional areas. The rectangles connected to the right of the "roundtangles" represent subordinate business functions.

Please note that the order in which the functional areas, functions, and sub-functions are listed, does not imply any precedence of dependence.

City of Redmond Business Function Model



Appendix C
Ideal Application Architecture

Based upon the City's business function model (Appendix C), Pacific Technologies, Inc. developed an ideal application architecture to support Redmond's critical business functions and services. The ideal application architecture on the following page illustrates those specialized applications that – in an ideal environment – would support each of the City's business functional areas (listed across the top of the diagram), as well as shared and citywide applications that would support multiple functional areas.

PTI then worked with the City – through interviews, focus groups, desk-side application reviews, and a workshop with city stakeholders – to conduct a gap analysis of existing business applications.

PTI first documented application strengths and weaknesses during interviews and focus groups with city staff.

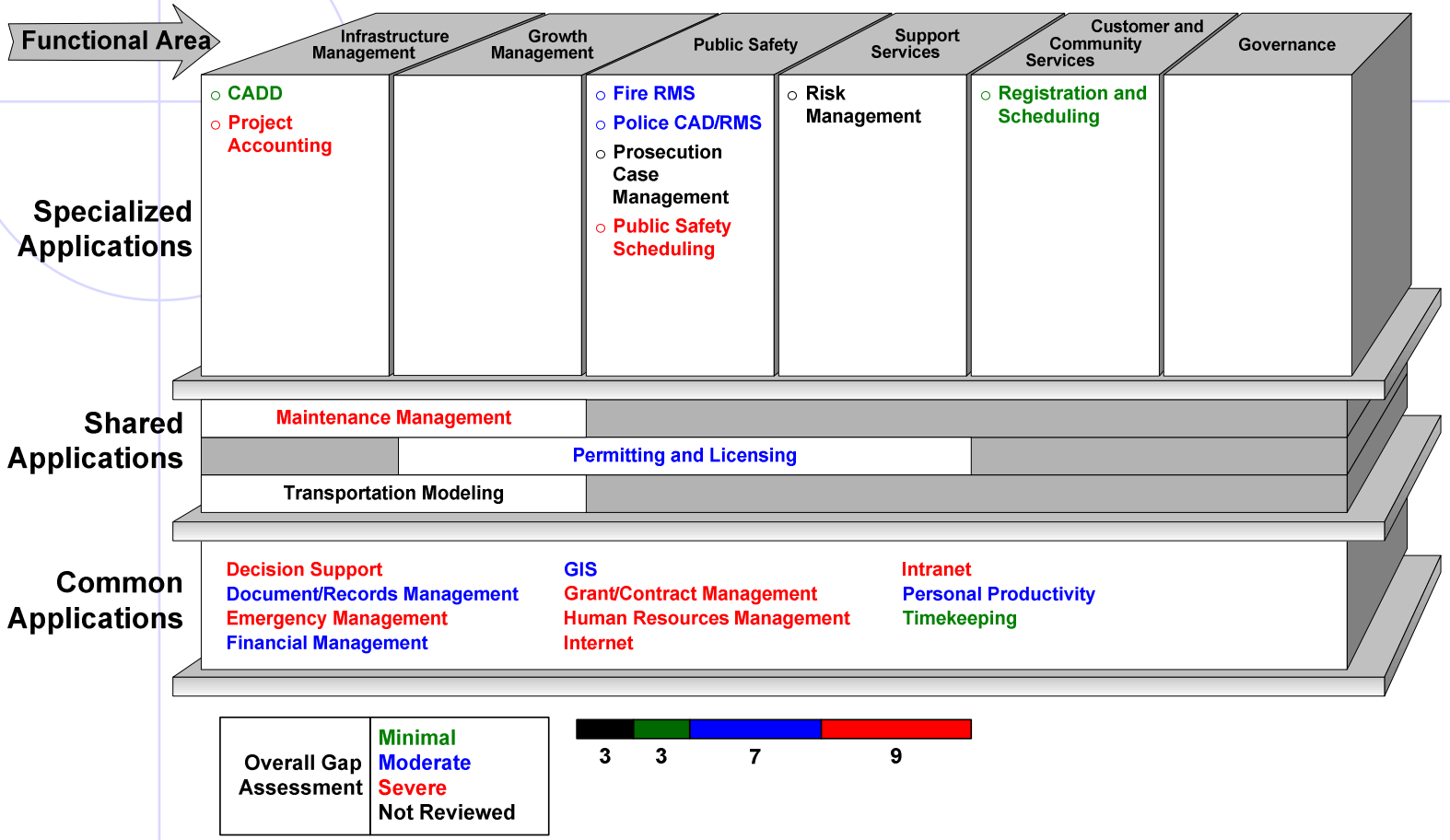
PTI then conducted desk-side application reviews, during which staff were asked to assign a gap on a scale of 1 (severe gap) to 5 (no gap) for six separate evaluation criteria:

- **Functionality** – the ability of the application to support necessary business processes
- **Ease of use** – the degree of user friendliness of the application's interface, screen layout, navigation, etc.
- **Integration** – the degree to which the application shares data with other applications, to minimize duplicate data entry
- **Implementation** – the degree to which the department's purchased application has been deployed
- **Reporting** – the appropriateness of canned reports and the degree/ease of report customization
- **Supporting systems** – the reliability, responsiveness, and/or "newness" of the support operating system, databases, etc.

Finally, PTI revised and validated these gap assignments during a workshop with the City's project steering team.

The gaps assigned in the following diagram (minimal, moderate, and severe) represent the gap between the functionality of existing applications and the target or ideal application environment, based on PTI's analysis described above. In some cases, no current application corresponds to the ideal state. In these cases, the severe gap results from the absence of ideal functionality. Where the gap is severe, opportunities exist for significant return on investment.

City of Redmond Ideal Application Architecture and Gap Analysis



Appendix D
IT Staffing Detail

In developing the information technology service delivery findings in Chapter 2, PTI evaluated information technology staffing levels across five functional areas:

- ***Customer Support*** – labor related to directly helping end users utilize IT systems and services (e.g., help desk, tier 2 support)
- ***Infrastructure Support*** – labor related to implementing and maintaining the organization's computers, systems software, and connectivity (e.g., servers, networks)
- ***Application Support*** – labor related to developing, installing, configuring, and otherwise maintaining the software needed to meet the operational, management, and reporting requirements of the organization
- ***IT Planning*** –labor related to technology planning and governance
- ***IT Administration*** – labor related to the oversight and administration of technology

The tables presented on the following pages reflect ongoing operations and maintenance (O&M) labor expressed as a percentage of full time equivalent (FTE) effort. They do not include IT labor paid for by capital allocations.

City staff initially provided this data, and reviewed and validated it after PTI assembled and analyzed it.

The table below presents a breakout of technology staffing levels and allocation between Information Services (IS) and the City's business units.

IT-titled Staff Labor Distribution*			
IT-titled Staff Labor Distribution*	IT FTE	% of all City IT FTE	% of all City FTE
Information Services	16.85	80.8%	2.58%
Other City Business Units	4.00	19.2%	0.61%
Total City IT FTE	**20.85**	**100.0%**	**3.19%**

*Excludes shadow staff

The table below summarizes the technology labor effort related to each of the IT disciplines.

	IT-Titled Staff Labor Effort					
IT Disciplines	Information Services (IS)	IS Allocation	Business Units' IT FTE	Business Units' Allocation	Citywide IT FTE	Citywide Allocation
Customer Support	3.66	17.6%	1.10	5.3%	4.76	22.8%
Infrastructure Support	3.91	18.7%	0.15	0.7%	4.06	19.5%
Application Support	5.07	24.3%	2.65	12.7%	7.72	37.0%
IT Planning	1.23	5.9%	0.10	0.5%	1.33	6.4%
IT Administration	2.98	14.3%	0.00	0.0%	2.98	14.3%
Total	**16.85**	**80.8%**	**4.00**	**19.2%**	**20.85**	**100.0%**

The following table presents a detailed overview of the City's *application support discipline* staffing levels. These numbers are representative of the effort devoted to support for software of a particular business function area.

	IT-Titled Staff Application Area Labor Effort					
Application Support	Information Services (IS) FTE	IS Allocation	Business Units' IT FTE	Business Units' Allocation	Citywide IT FTE	Citywide Allocation
Application Project Management	1.28	16.6%	0.00	0.0%	1.28	16.6%
Law, Safety and Justice	0.11	1.4%	1.35	17.5%	1.46	18.9%
Public Infrastructure	0.16	2.1%	0.00	0.0%	0.16	2.1%
Planning and Development	0.40	5.2%	0.90	11.7%	1.30	16.8%
Community Services	0.18	2.3%	0.40	5.2%	0.58	7.5%
Governance and Administration	0.00	0.0%	0.00	0.0%	0.00	0.0%
Support Services	0.94	12.2%	0.00	0.0%	0.94	12.2%
eGovernment (Web/Internet)	0.85	11.0%	0.00	0.0%	0.85	11.0%
Geographic Information Systems (GIS)	1.15	14.9%	0.00	0.0%	1.15	14.9%
Total	**5.07**	**65.7%**	**2.65**	**34.3%**	**7.72**	**100.0%**

The following tables present summary data for the staffing matrix, completed and verified by the City during the assessment phase of this project, for FTE counts and labor costs. Due to the nature and sheer size of the data set, the full matrix and associated data cannot be effectively presented in this report. Definitions for each of the IT disciplines and associated activities used in the staffing matrix follow the summary tables.

FTE Totals	Central Org IT Staff	Business Unit IT Staff	FTE TOTAL
Customer Support	**3.66**	**1.10**	**4.76**
Help Desk (Tier 1)	0.81	0.20	1.01
Tier 2 support:	**0.98**	**0.25**	**1.20**
Personal Computer Support	0.58	0.15	0.73
Portable Device/Specialized Device Support	0.21	0.05	0.26
Personal Productivity Tool Support	0.16	0.05	0.21
Business Application Support	1.26	0.50	1.76
Training	0.64	0.15	0.79
Infrastructure Support	**3.91**	**0.15**	**4.06**
Personal Computer Administration	0.40	0.00	0.40
Database Administration	0.12	0.03	0.15
Security Administration	0.14	0.02	0.16
Data Center/Server Room Operations	0.19	0.00	0.19
Project Management	0.57	0.00	0.57
Server Administration:	**1.35**	**0.10**	**1.45**
Email/Calendaring Administration	0.18	0.00	0.18
File/Print Administration	0.15	0.00	0.15
Application Server Administration	0.09	0.10	0.19
Database Server Administration	0.06	0.00	0.06
Storage Administration	0.35	0.00	0.35
Other Server Administration	0.52	0.00	0.52
Communication Services:	**1.14**	**0.00**	**1.14**
Network Administration (WAN/LAN/Wireless)	0.54	0.00	0.54
Radio Support	0.00	0.00	0.00
Telephone Systems Support	0.60	0.00	0.60
Business Application Support	**5.07**	**2.65**	**7.72**
Law, Safety and Justice	**0.32**	**1.35**	**1.67**
Packaged application support	0.10	1.05	1.15
Custom application support	0.01	0.30	0.31
Project Management	0.21	0.00	0.21
Public Infrastructure	**0.23**	**0.00**	**0.23**
Packaged application support	0.10	0.00	0.10
Custom application support	0.06	0.00	0.06
Project Management	0.07	0.00	0.07
Planning and Development	**0.73**	**0.90**	**1.63**
Packaged application support	0.30	0.90	1.20
Custom application support	0.10	0.00	0.10
Project Management	0.33	0.00	0.33
Community Services	**0.23**	**0.40**	**0.63**
Packaged application support	0.10	0.40	0.50
Custom application support	0.08	0.00	0.08
Project Management	0.05	0.00	0.05
Governance and Administration	**0.00**	**0.00**	**0.00**
Packaged application support	0.00	0.00	0.00
Custom application support	0.00	0.00	0.00
Project Management	0.00	0.00	0.00
Support Services	**0.96**	**0.00**	**0.96**
Packaged application support	0.65	0.00	0.65
Custom application support	0.29	0.00	0.29
Project Management	0.02	0.00	0.02
eGovernment (Web/Internet)	**0.93**	**0.00**	**0.93**
Packaged application support	0.60	0.00	0.60
Custom application support	0.25	0.00	0.25
Project Management	0.08	0.00	0.08
Geographic Information Systems (GIS)	**1.67**	**0.00**	**1.67**
Packaged application support	0.40	0.00	0.40
Custom application support	0.75	0.00	0.75
Project Management	0.52	0.00	0.52
IT Planning	**1.23**	**0.10**	**1.33**
Strategic planning & governance	0.35	0.03	0.38
Research and development	0.79	0.04	0.83
Disaster recovery/planning	0.09	0.03	0.12
IT Administration	**2.98**	**0.00**	**2.98**
Asset management	0.45	0.00	0.45
IT procurement	0.61	0.00	0.61
Standards and policies development	0.38	0.00	0.38
Customer Account Management	0.12	0.00	0.12
Administrative support	0.07	0.00	0.07
Departmental management	1.35	0.00	1.35
Capital IT Projects			
Capital IT Project Labor	0.05	0.00	0.05
Totals (excluding capital projects)	**16.85**	**4.00**	**20.85**

Cost Totals	Central Org IT Staff	Business Unit IT Staff	Cost TOTAL
Customer Support	**$ 384,150**	**$ 86,507**	**$ 470,656**
Help Desk (Tier 1)	$ 77,589	$ 16,265	$ 93,854
Tier 2 support:	**$ 84,830**	**$ 31,226**	**$ 116,056**
Personal Computer Support	$ 51,347	$ 18,735	$ 70,082
Portable Device/Specialized Device Support	$ 17,626	$ 6,245	$ 23,871
Personal Productivity Tool Support	$ 15,858	$ 6,245	$ 22,103
Business Application Support	$ 152,676	$ 30,433	$ 183,109
Training	$ 69,054	$ 8,583	$ 77,637
Infrastructure Support	**$ 471,612**	**$ 18,735**	**$ 490,347**
Personal Computer Administration	$ 35,796	$ -	$ 35,796
Database Administration	$ 16,303	$ 3,747	$ 20,050
Security Administration	$ 18,955	$ 2,498	$ 21,453
Data Center/Server Room Operations	$ 25,183	$ -	$ 25,183
Project Management	$ 71,738	$ -	$ 71,738
Server Administration:	**$ 166,872**	**$ 12,490**	**$ 179,362**
Email/Calendaring Administration	$ 22,032	$ -	$ 22,032
File/Print Administration	$ 18,555	$ -	$ 18,555
Application Server Administration	$ 11,241	$ 12,490	$ 23,731
Database Server Administration	$ 7,344	$ -	$ 7,344
Storage Administration	$ 43,209	$ -	$ 43,209
Other Server Administration	$ 64,492	$ -	$ 64,492
Communication Services:	**$ 136,765**	**$ -**	**$ 136,765**
Network Administration (WAN/LAN/Wireless)	$ 69,680	$ -	$ 69,680
Radio Support	$ -	$ -	$ -
Telephone Systems Support	$ 67,085	$ -	$ 67,085
Business Application Support	**$ 597,600**	**$ 211,424**	**$ 809,023**
Law, Safety and Justice	**$ 35,976**	**$ 120,634**	**$ 156,610**
Packaged application support	$ 11,092	$ 83,163	$ 94,255
Custom application support	$ 1,212	$ 37,471	$ 38,683
Project Management	$ 23,672	$ -	$ 23,672
Public Infrastructure	**$ 31,395**	**$ -**	**$ 31,395**
Packaged application support	$ 13,808	$ -	$ 13,808
Custom application support	$ 7,706	$ -	$ 7,706
Project Management	$ 9,880	$ -	$ 9,880
Planning and Development	**$ 83,570**	**$ 67,901**	**$ 151,471**
Packaged application support	$ 33,276	$ 67,901	$ 101,177
Custom application support	$ 12,554	$ -	$ 12,554
Project Management	$ 37,740	$ -	$ 37,740
Community Services	**$ 30,842**	**$ 22,888**	**$ 53,731**
Packaged application support	$ 13,808	$ 22,888	$ 36,697
Custom application support	$ 10,130	$ -	$ 10,130
Project Management	$ 6,904	$ -	$ 6,904
Governance and Administration	**$ -**	**$ -**	**$ -**
Packaged application support	$ -	$ -	$ -
Custom application support	$ -	$ -	$ -
Project Management	$ -	$ -	$ -
Support Services	**$ 119,861**	**$ -**	**$ 119,861**
Packaged application support	$ 81,741	$ -	$ 81,741
Custom application support	$ 35,144	$ -	$ 35,144
Project Management	$ 2,976	$ -	$ 2,976
eGovernment (Web/Internet)	**$ 107,303**	**$ -**	**$ 107,303**
Packaged application support	$ 63,873	$ -	$ 63,873
Custom application support	$ 32,471	$ -	$ 32,471
Project Management	$ 10,958	$ -	$ 10,958
Geographic Information Systems (GIS)	**$ 188,653**	**$ -**	**$ 188,653**
Packaged application support	$ 46,703	$ -	$ 46,703
Custom application support	$ 79,376	$ -	$ 79,376
Project Management	$ 62,575	$ -	$ 62,575
IT Planning	**$ 161,098**	**$ 12,490**	**$ 173,588**
Strategic planning & governance	$ 50,372	$ 3,747	$ 54,119
Research and development	$ 98,757	$ 4,996	$ 103,754
Disaster recovery/planning	$ 11,969	$ 3,747	$ 15,716
IT Administration	**$ 380,479**	**$ -**	**$ 380,479**
Asset management	$ 47,868	$ -	$ 47,868
IT procurement	$ 77,499	$ -	$ 77,499
Standards and policies development	$ 50,887	$ -	$ 50,887
Customer Account Management	$ -	$ -	$ -
Administrative support	$ 9,642	$ -	$ 9,642
Departmental management	$ 194,583	$ -	$ 194,583
Capital IT Projects			
Capital IT Project Labor	$ -	$ -	$ -
Totals (excluding capital projects):	**$ 1,994,938**	**$ 329,156**	**$ 2,324,094**

Customer Support

Customer Services includes those activities related to directly supporting users of IT systems and services (e.g., help desk).

Help Desk (Tier 1)

The activities related to providing a first point of contact for users to report problems and seek answers to questions related to their personal computers, network access, email, personal productivity software, and business application software. Includes initial problem resolution, triage, and problem escalation.

Tier 2 Support

The activities related to providing in-person assistance with the software and hardware that support user work functions, including PCs, handhelds and other mobile devices, peripherals, and specialized computing environments such as public kiosks.

Personal Computer Support (Tier 2)

The activities related to onsite support of the organization's network applications (e.g., calendar, email, etc.), desktop computers, laptop computers, terminals, and attendant operating systems and peripherals.

Portable/Specialized Device Support (Tier 2)

The processes related to onsite support of personal digital assistants (PDAs), including troubleshooting syncing to desktop PCs, network connectivity, and their business-specific applications. The processes related to onsite support of the special purpose devices (beyond portable devices), such as kiosks, mobile data terminals (MDTs), etc., along with attendant peripherals.

Personal Productivity Tool Support (Tier 2)

The processes related to providing onsite end user support concerning the use of desktop applications such as word processing, spreadsheets, presentation tools, and other organizational office productivity tools.

Business Application Support (Tier 2)

The processes related to providing end-user support (answering questions, etc.) regarding the use of business-specific software (e.g., financial management, permit management, etc.) beyond that which is provided by the first point of contact.

Training

The processes related to providing technology-related instruction to staff aimed at enhancing their skills, knowledge, and performance. Includes training requirement analysis, course design and development, and training delivery.

Infrastructure Support

Infrastructure Services include those activities related to implementing and maintaining the organization's computers, systems software, and connectivity (servers, networks, etc.).

Personal Computer Administration

The activities related to the setup, configuration, original installation, and scheduled maintenance of end users' desktop and laptop computers, end-user terminals, and related peripherals. Includes installation and configuration of PC operating systems and software, such as personal productivity tools and anti-virus applications. Includes the creation and maintenance of disk images, application of patches and updates, and all scheduled maintenance.

Database Administration

The processes related to planning, implementing, and administering the data structures required to support the organization's applications portfolio, and to maintaining the data contained within the Organization's defined data structures. Includes performance management and recovery.

Security Administration

The processes related to developing, maintaining, and administering the security plan for the organization's host processors, servers, personal computers, communication devices and networks. Does not include installation of desktop security tools nor server account management – does include managing centrally managed server based security solutions.

Data Center/Server Room Operations

The processes related to the planning, administration, and operation of the facility that houses all centralized citywide computing equipment, including backup/restore operations and storage management. It also includes operation and maintenance of the attendant systems, including fire suppression, backup electrical power, air conditioning, etc.

Project Management

Those processes related to the oversight and coordination of major systems-related technology initiatives.

Server Administration

The activities related to implementing and maintaining servers, including both Intel-based and mid-range devices (such as AS/400). These activities also include administration, account management, and operation of file, print, and application servers and other logical network devices; performance management; tuning; applying operating system patches and upgrades; and administering configuration data.

Email/Calendaring Administration

Administration of email and calendaring servers, including account set-up, backup administration, account restoration, etc.

File/Print Administration

Administration of file and print servers including account administration, print queue monitoring, back-up and optimization, etc.

Application Server Administration

Administration of servers used to house or deliver application software to end-users. Includes account administration, optimization of network connectivity, data backup, database restoration, etc. Covers ERP and departmental application hosting, as well as GIS, Web sites for eGovernment and/or Intranet, etc.

Database Server Administration

Labor concerned with maintaining the hardware and network capabilities associated with the Organization's database servers. Examples include assessing and increasing storage capacity, improving data throughput, overseeing server access security, etc.

Storage Administration

Labor associated with the administration of SANS/NAS data storage, centralized archival storage systems and/or off site data storage. Activities would include performing scheduled backups, assessing storage capacity and growth demands, setting end-user storage quotas, monitoring data storage security and integrity, assisting with emergency planning and data recovery efforts, etc.

Other Server Administration

Administration of any other servers not accounted for in the prior categories. Examples may be dedicated proprietary SCADA servers, server used for administration of MDTs or other secure communications services, video and webcasting servers, etc. NOTE: Web server administration is NOT in this category -- labor related to these should go under "Application Server Administration", above.

Communication Services

Administration of the devices, services and vendors responsible for voice and data communication within and external to the organization. May include infrastructure device installation and maintenance (phones, routers, etc.), and managing service agreements and relationships with vendors and/or contractors.

Network Administration (LAN/WAN/Wireless)

The activities related to implementing and maintaining the operational integrity of the organization's local and wide-area networks, both wired and wireless, and video technology. Technologies include building wiring, fiber optic data circuits, and point-to-point technologies such as laser and microwave. These activities include responding to user requests for assistance, performance monitoring, coordinating with external network service providers, and taking appropriate corrective actions as needed.

Radio Support

The activities related to maintaining a radio communication infrastructure inclusive of end-user radio support for both public safety and other government needs. May include direct infrastructure technical support or oversight of independent contractors, and managing vendor relationships. Staff in this role may be involved in developing radio maintenance procedures and operational policies, communications protocols, and/or emergency response planning efforts.

Telephone Systems Support

Implementation, administration and management of analog and/or Voice over IP telephone services, including number assignment, phone moves, voice mail system management, connectivity, switch or gateway maintenance, etc.

Application Support

Application Services includes those activities related to developing, installing, configuring, and otherwise maintaining the software needed to meet the operational, management, and reporting requirements of the organization.

Law, Safety, and Justice

Management and maintenance of the applications related to the administration and delivery of services within law enforcement, emergency services, fire services and court automation systems.

Public Infrastructure

Management and maintenance of the applications related to supporting the organizations utilities, transit, and transportation infrastructure, and other major physical assets.

Planning and Development

Management and maintenance of the applications related to the administration of the organizations planning and development automation, such as permit issuance, land use planning, code enforcement, etc.

Community Services

Management and maintenance of the applications related to the delivery of social services, health, and recreation.

Governance and Administration

Management and maintenance of the applications that support elections, legislative decision support, and related functions of the organization.

Support Services

Management and maintenance of the applications that are used to support to internal administrative needs.

eGovernment (Web/Internet)

Management and maintenance of applications related to design, maintenance, and development of internal and public-facing web pages and online services not covered by business applications in other categories.

Geographic Information System (GIS)

Management and maintenance of the applications related to the design, development, and maintenance of mapping layers, mapping data, and data conversion.

IT Planning

IT Planning includes those activities related to planning for the technology function at the organization.

Strategic Planning and Governance

The processes related to identifying and evaluating the future directions for IT application, networks, and hardware for the organization. Includes strategic planning, evaluating and prioritizing IT investments, technology research, participating in committees and task forces, and feasibility studies.

Research and Development

The processes related to evaluation and testing of current and future IT products and services, and to the deployment of pilot projects to test the viability of these technologies for the organization. Includes dissemination of relevant information to appropriate parties.

Disaster Recovery/Planning

The processes related to developing, maintaining, updating, and testing the organization's IT disaster recovery/business resumption plan, and to activating and managing the plan in the event of a disaster.

IT Administration

IT Administration includes those activities related to the oversight and administration of the technology function at the organization.

Asset Management

The processes related to managing the IT properties of the organization, include tracking serial number, warranty, and inventory.

IT Procurement

The processes related to acquisition of goods and services in support of all IT functions; including the development of RFP's, evaluation and selection of vendors, management of purchasing activities, receipt and inventory of goods, and tracking of warranty information and performance guarantees.

Standards and Policies Development

Those processes related to the creation and updating of citywide IT standards and policies related to hardware, software, procurement, security, and staffing.

Customer Account Management

Staff work in conjunction with departments or divisions guaranteeing that service level agreements are adhered to and customer needs are being met. Includes tracking and reporting service levels, business need assessments and service gap determination, and the collection and reporting of service measures (e.g., tier 1 and tier 2 response and resolution rates, customer satisfaction surveys). May also include directly managing vendor service contracts or assisting with vendor relationship management.

Administrative Support

The processes related to the provision of clerical, administrative, and related services required for the ongoing operation of the IT division.

Departmental Management

The processes related to management and oversight of the organization's technology functions: including staff evaluation, quality assurance, and budgeting.

Appendix E
Implementation Project Descriptions

This section describes the recommended strategic technology projects, grouped by Redmond's IT goals:

- Accessibility and Accountability
- Regional Leadership
- Streamlined Operations Projects
- IT Service and Decision Making
- Technical Infrastructure

E

Global Cost and Labor Assumptions

PTI costed each project adhering to the following global assumptions:

All costs are incremental to current City budgets

A work year (FTE) comprises 2,080 hours

All internal (i.e., SME and IT) labor effort estimates are in FTE

One-time internal labor estimates are calculated based on total required labor effort over the duration of the project – backfill is not included

All external (i.e., professional services) labor effort estimates are in hours

External labor (e.g., procurement, implementation, project management, quality assurance services, training, and miscellaneous consulting) costs are estimated at $175 per hour

Software and hardware cost estimates are informed by market research, where appropriate

Recurring software costs are estimated at 20% of one-time purchase costs, except where otherwise noted

Recurring hardware costs are estimated at 10% of one-time purchase costs, except where otherwise noted

The following pages detail the cost figures and assumptions behind PTI's recommended projects. Each page references the estimated costs and labor effort associated with a project, utilizing the framework below:

PTI estimated FTE for internal City labor, but did not include cost projections.

When included, independent, third-party quality assurance is estimated at the high-end at **10%** of implementation costs for hardware and software implementation projects.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	1.00	0.60	$ -	$ -	0.30	0.65	$ -	$ -
SME	0.25	0.50	$ -	$ -	0.05	0.15	$	
IS	0.75	0.10	$ -	$ -	0.25	0.50	$	
Professional Services Labor (Total)	80	1,120	$ 14,000	$ 196,000			$	
Procurement	80	120	$ 14,00				$	
Implementation and Training		1,000	$				$	-
Project Management			$					
Quality Assurance			$					
Miscellaneous Consulting			$				$	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$**	**$ 196,000**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

One-time external labor costs are calculated based on total required labor hours over the duration of the project.

Recurring hardware costs are estimated at **10%** of one-time purchase costs, except where otherwise noted.

Software and hardware cost estimates, where appropriate, are informed by market research.

Recurring software costs are estimated at **20%** of one-time purchase costs, except where otherwise noted.

1.1 Redesign the City's website

Aligned with current plans, this project replaces the City's current website with a redesigned, stakeholder-centric website replete with updated content and further transactional capabilities. Updating the design of Redmond's website following industry trends and best practices enhances usability – encouraging stakeholders to gather information and/or utilize services over the Internet rather than physically coming to the City for their needs.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.60	0.75	$ -	$ -	0.30	0.65	$ -	$ -
SME	0.50	0.65	$ -	$ -	0.05	0.15	$ -	$ -
IS	0.10	0.10	$ -	$ -	0.25	0.50	$ -	$ -
Professional Services Labor (Total)	1,120	1,715	$ 196,000	$ 300,125			$ -	$ -
Procurement	120	175	$ 21,000	$ 30,625				
Implementation and Training	1,000	1,540	$ 175,000	$ 269,500			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 196,000**	**$ 300,125**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- Low-end:
  - 120 hours of professional procurement assistance
  - 1,000 hours of professional website design and building assistance
  - .50 FTE of business unit participation to help identify needed content/services
  - .10 FTE of IS project management
- High-end:
  - 175 hours of professional procurement assistance
  - 1,540 hours of professional website design and building assistance
  - .65 FTE of business unit participation to help identify needed content/services
  - .10 FTE of IS project management
- Ongoing SMEs and IT effort focused on maintaining the City's web presence

1.2 Deploy document management citywide

This project expands Redmond's use of Oracle records management to all City departments. Costs primarily surround external consulting for implementing document management workflow, integrating with the City's current applications, and converting paper records to electronic versions. Redmond currently has an citywide license for Oracle records management and can add users without incurring additional software costs.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	1.10	1.65	$ -	$ -	0.60	0.75	$ -	$ -
SME	0.35	0.50	$ -	$ -	0.20	0.25	$ -	$ -
IS	0.75	1.15	$ -	$ -	0.40	0.50	$ -	$ -
Professional Services Labor (Total)	800	1,325	$ 140,000	$ 231,875	20	45	$ 3,500	$ 7,875
Procurement			$ -	$ -				
Implementation and Training	550	825	$ 96,250	$ 144,375	20	45	$ 3,500	$ 7,875
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting	250	500	$ 43,750	$ 87,500			$ -	$ -
Hardware			$ 70,000	$ 107,500			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 210,000**	**$ 339,375**			**$ 3,500**	**$ 7,875**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME FTEs help design business process workflow
- IS FTEs deploy/test application and associated hardware
- Redmond utilizes professional implementation, training and document conversion assistance
- Recurring SME FTEs inform ongoing application workflow changes
- Recurring IS FTEs perform ongoing application administration and hardware maintenance
- Redmond utilizes one week per year of ongoing professional training

1.3 Evaluate and test Business Intelligence Software

This project implements a decision support/business intelligence tool in a single business area (e.g., Finance). Limiting the deployment of this automation helps ensure the City doesn't bite off more than it can chew when implementing the software, and it provides a test case for product capabilities while minimizing the City's investment and associated risks.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.50	0.80	$ -	$ -	0.45	0.90	$ -	$ -
SME	0.25	0.50	$ -	$ -	0.20	0.40	$ -	$ -
IS	0.25	0.30	$ -	$ -	0.25	0.50	$ -	$ -
Professional Services Labor (Total)		171	$ -	$ 30,000			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training		171	$ -	$ 30,000			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ 5,000			$ -	$ 1,000
Software			$ 1,950	$ 20,000			$ 390	$ 4,000
Total Cost			**$ 1,950**	**$ 55,000**			**$ 390**	**$ 5,000**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME FTEs identify critical decision support areas
- IS FTEs implement, integrate and configure the software
- On the low-end, Redmond installs software on a current Redmond server with spare capacity
- On the high-end:
  - Redmond purchases and installs decision support software on a new, but basic server
  - The City utilizes professional implementation, integration and configuration assistance

1.4 Investigate options for wireless access throughout the City

This project conducts a study to assess the City's options for deploying wireless internet infrastructure to serve Redmond citizens and businesses. Wireless connectivity enables residents and businesses to access desired information and conduct transactions over the Internet, thereby encouraging commerce and furthering development in Redmond. The study analyzes the coverage area (e.g., limited hotspots or blanket coverage), methods for maintenance and support (e.g., internal support, third party maintenance), and potential funding mechanisms.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.10	0.20	$ -	$ -			$ -	$ -
SME			$ -	$ -			$ -	$ -
IS	0.10	0.20	$ -	$ -			$ -	$ -
Professional Services Labor (Total)	250	400	$ 43,750	$ 70,000			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting	250	400	$ 43,750	$ 70,000			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 43,750**	**$ 70,000**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- The City utilizes professional services to study wireless networking options
- IS FTEs participate in developing and reviewing the study

2.1 Participate in the System Enhanced Network Design (SEND) initiative

The SEND Strategic Initiative is a five-year project focused on enhancing emergency medical services (EMS) data collection in King County by replacing current paper Medical Incident Report Form (MIRF) with electronic data capture devices that store data in a central repository. SEND is a five-year project focused on enabling timely EMS data collection into a central repository and allowing for secure data sharing between King County hospitals, dispatch centers, and 31 emergency medical services agencies in order to improve the quality and timeliness of EMS data, enhance the emergency medical protocols practiced by EMS personnel, and improve patient care through transmission of data while en-route to hospitals.

Participating in SEND requires laptops and wireless broadband communications equipment in basic and advanced life support vehicles, as well as training for EMS personnel.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.30	0.60	$ -	$ -	0.10	0.14	$ -	$ -
SME	0.20	0.40	$ -	$ -	0.04	0.06	$ -	$ -
IS	0.10	0.20	$ -	$ -	0.06	0.09	$ -	$ -
Professional Services Labor (Total)	172	284	$ 30,100	$ 49,700			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training	120	180	$ 21,000	$ 31,500			$ -	$ -
Project Management	52	104	$ 9,100	$ 18,200				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ 59,040	$ 59,160			$ 5,904	$ 5,916
Software			$ 18,000	$ 30,800			$ 3,600	$ 6,160
Total Cost			**$ 107,140**	**$ 139,660**			**$ 9,504**	**$ 12,076**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME FTEs take part in SEND training
- IS FTEs assist in procuring and installing technical equipment
- Redmond equips 12 basic life support (BLS) and advanced life support (ALS) vehicles with:
  - Ruggedized laptop
  - Laptop vehicle mount
  - Wireless card
  - Mobile printer
  - Training for 12 individuals

2.2 Evaluate regional partnership opportunities for delivery of online services

Redmond already participates in the eCityGov Alliance for commercial property listings and Human Services. This project involves analyzing the costs and benefits of additional technology partnerships to help citizens and businesses access online services from Redmond or other partner cities.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.20	0.40	$ -	$ -			$ -	$ -
SME	0.10	0.20	$ -	$ -			$ -	$ -
IS	0.10	0.20	$ -	$ -			$ -	$ -
Professional Services Labor (Total)		150	$ -	$ 26,250			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting		150	$ -	$ 26,250			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ 26,250**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- On the low-end, Redmond conducts the study internally
  - SME FTEs analyze the benefits of partnership
  - IS FTEs analyze the technical feasibility of the partnership
- On the high-end, Redmond utilizes 150 hours of professional consulting assistance to conduct the study

3.1 Implement an improvement program for the City's finance and HR management system

PTI's planning work with Redmond called for a more effective finance/HR management system. However, given that the current system was procured and implemented only four years ago, PTI does not recommend procuring and implementing new finance/HR automation. The City should instead make better use of the current application: EnterpriseOne. This project is a re-implementation of EnterpriseOne, focusing on implementing modules that the City owns – but does not utilize – in addition to extensively training IT and SME users how to operate the system more effectively. Even with this re-implementation, the existing software solution will be less than optimal and other alternatives should be considered which may be more costly but yield better long-term results for the City.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Internal Labor (Total)	1.75	2.50	$ -	$ -			$ -	$ -
SME	0.50	0.75	$ -	$ -			$ -	$ -
IS	1.25	1.75	$ -	$ -			$ -	$ -
Professional Services Labor (Total)	3,650	6,910	$ 638,750	$1,209,250	120	500	$ 21,000	$ 87,500
Procurement			$ -	$ -				
Implementation and Training	3,000	6,000	$ 525,000	$1,050,000	120	500	$ 21,000	$ 87,500
Project Management	650	910	$ 113,750	$ 159,250				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 638,750**	**$1,209,250**			**$ 21,000**	**$ 87,500**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME FTEs participate in determining and testing software configuration
- IS FTEs assist the vendor in deploying all EnterpriseOne modules and integrating the application with other software packages and data repositories at the City
- The City utilizes professional implementation assistance to re-deploy EnterpriseOne and adequately train all end users as needed to ensure proficient application utilization

3.2 Implement improved permit processes and software

Although Accela has not announced a sunset date for PermitsPlus after acquiring Sierra, Accela has not improved PermitsPlus and will eventually cease to support it in favor of its own permitting product, Automation. As of this writing, Accela is not offering an upgrade path to Automation for PermitsPlus customers. Given this environment, this project conducts a competitive procurement process to purchase and implement municipal permitting software while simultaneously assessing and improving permitting processes at the City.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Internal Labor (Total)	1.05	1.45	$ -	$ -	2.00	3.50	$ -	$ -
SME	0.40	0.60	$ -	$ -	1.00	1.50	$ -	$ -
IS	0.65	0.85	$ -	$ -	1.00	2.00	$ -	$ -
Professional Services Labor (Total)	1,068	1,662	$ 186,900	$ 290,850		80	$ -	$ 14,000
Procurement	300	500	$ 52,500	$ 87,500				
Implementation and Training	350	600	$ 61,250	$ 105,000		80	$ -	$ 14,000
Project Management	338	442	$ 59,150	$ 77,350				
Quality Assurance	80	120	$ 14,000	$ 21,000				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ 35,000			$ -	$ 7,000
Software			$ 277,600	$ 448,667			$ 55,520	$ 89,733
Total Cost			**$ 464,500**	**$ 774,517**			**$ 55,520**	**$ 110,733**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME FTEs:
  - Inform functional requirements
  - Participate in evaluating vendor responses and demonstrations (if applicable)
  - Determine business process impacts and changes
  - Help the vendor configure permitting workflow according to business practices
- IS FTEs:
  - Inform technical requirements
  - Participate in evaluating vendor responses and demonstrations (if applicable)
  - Assist the vendor with installing and integrating the software package
- The system requires one server each for production, test web, and database functions

3.3 Migrate to the current version of the City's police dispatch and records management systems

In concert with current plans, acquire necessary hardware and server operating systems, then consolidate on Spillman's current CAD/RMS software version (4.6).

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.06	0.10	$ -	$ -			$ -	$ -
SME	0.04	0.06	$ -	$ -			$ -	$ -
IS	0.02	0.04	$ -	$ -			$ -	$ -
Professional Services Labor (Total)			$ -	$ -			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ -**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME and IS FTEs coordinate system upgrade and transition activities
- The City has budgeted for the required hardware for this upgrade
- The software upgrade is free with Redmond's maintenance contract

3.4 Procure and implement a maintenance management system

As the City currently lacks maintenance management automation, this project acquires and deploys robust, commercial maintenance management system (MMS) at Redmond. This project also involves integrating the MMS with the City's financial software to reduce redundant data entry and promote decision support.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	4.50	5.00	$ -	$ -	0.50	0.70	$ -	$ -
SME	2.75	3.00	$ -	$ -	0.20	0.30	$ -	$ -
IS	1.75	2.00	$ -	$ -	0.30	0.40	$ -	$ -
Professional Services Labor (Total)	1,209	2,000	$ 211,500	$ 350,000		40	$ -	$ 7,000
Procurement	514	629	$ 90,000	$ 110,000				
Implementation and Training	694	1,371	$ 121,500	$ 240,000		40	$ -	$ 7,000
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ 35,000			$ -	$ 7,000
Software			$ 40,500	$ 80,000			$ 8,100	$ 16,000
Total Cost			**$ 252,000**	**$ 465,000**			**$ 8,100**	**$ 30,000**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME FTEs:
  - Inform functional requirements
  - Participate in evaluating vendor responses and demonstrations (if applicable)
  - Determine business process impacts and changes
  - Help the vendor configure maintenance management workflow according to business practices
- IS FTEs:
  - Inform technical requirements
  - Participate in evaluating vendor responses and demonstrations (if applicable)
  - Assist the vendor with installing and integrating the software package
- The system requires one server each for production, test web, and database functions

3.5 Integrate GIS and other databases with business applications

GIS is increasingly becoming a common method for viewing data from multiple applications. For example, GIS map viewing software with access to a city's permitting system can display past and current permits. In addition, assuming the GIS is also integrated with the city's document management system, a stakeholder could access additional information (e.g., property deeds) about a particular parcel. Public works and land use/zoning departments have utilized GIS for years – now use is expanding heavily into public safety, parks and recreation, and environmental protection. This project integrates data in disparate application repositories to the City's GIS system in order to facilitate a geographical analysis of the data.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.70	0.65	$ -	$ -			$ -	$ -
SME	0.20	0.40	$ -	$ -			$ -	$ -
IS	0.50	0.25	$ -	$ -			$ -	$ -
Professional Services Labor (Total)		840	$ -	$ 147,000			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training		840	$ -	$ 147,000			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ 147,000**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- The City integrates six core applications with GIS
- On the low-end, IS FTEs integrate the applications
- On the high-end, the City contracts with professional GIS consultants to integrate GIS with each application, involving 140 hours of professional integration assistance per application
- In both cases, SME FTEs assist in the functional aspects of integration
- On the high-end, IS FTEs assist the vendor with technical aspects of integration

3.6 Enhance the City's intranet and collaboration tools

This project involves developing a robust intranet to facilitate citywide information flow and provide a common, easily accessible repository for work in progress (e.g., fulfilling a public disclosure request involving multiple departments).

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.35	0.70	$ -	$ -	0.20	0.40	$ -	$ -
SME	0.10	0.20	$ -	$ -	0.10	0.20	$ -	$ -
IS	0.25	0.50	$ -	$ -	0.10	0.20	$ -	$ -
Professional Services Labor (Total)	160	660	$ 28,000	$ 115,500			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training	160	240	$ 28,000	$ 42,000			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting		420	$ -	$ 73,500			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ 50,000	$ 70,000			$ 10,000	$ 14,000
Total Cost			**$ 78,000**	**$ 185,500**			**$ 10,000**	**$ 14,000**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- On the low-end, the City procures and deploys an intranet tool such as Microsoft Sharepoint
- On the high-end, the City:
  - Utilizes professional intranet design and deployment services
  - Employs professional web developers to create internal facing department intranet pages
- SME FTEs participate in:
  - Identifying desired content and functionality
  - Training
- IS FTEs procure and implement the intranet tool
- Ongoing SME and IS FTEs maintain the intranet content and the intranet application, respectively

4.1 Establish an IT steering team and implement a structured IT decision-making model

This project establishes a citywide governance model for information technology at the City (detailed in Chapter 3). It develops a cross-departmental technology steering team and defines membership, scope of authority, roles, responsibilities, and relationships between IS and City departments. This project also creates the governance processes and associated tools to support IT project oversight.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.09	0.18	$ -	$ -			$ -	$ -
SME	0.06	0.12	$ -	$ -			$ -	$ -
IS	0.03	0.07	$ -	$ -			$ -	$ -
Professional Services Labor (Total)		140	$ -	$ 24,500			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training		140	$ -	$ 24,500			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ 24,500**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- Four 2-hour meetings with City department directors to:
  - Establish objectives
  - Review draft charter
  - Finalize charter
  - Review draft processes and tools
  - Finalize tools
- IS and business unit staff support to develop and finalize materials (60 hours each)
- High-end estimate includes external consulting services to facilitate IT governance model development

4.2 Implement a formal approach to IT service management

This project defines and implements an integrated, process-based set of best practices to manage IT services, including both service support (configuration management, change management, release management, incident management, problem management, and service desk) and service delivery (availability management, service continuity, capacity management, service level management, and financial management). It develops a phased transition plan; implements the plan; and monitors outcomes and integrates enhancements as needed.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.20	0.30	$ -	$ -	0.09	0.09	$ -	$ -
SME	0.15	0.20	$ -	$ -			$ -	$ -
IS	0.05	0.10	$ -	$ -	0.09	0.09	$ -	$ -
Professional Services Labor (Total)	274	446	$ 48,000	$ 78,000	91	91	$ 16,000	$ 16,000
Procurement			$ -	$ -				
Implementation and Training	274	274	$ 48,000	$ 48,000	91	91	$ 16,000	$ 16,000
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting		171	$ -	$ 30,000			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 48,000**	**$ 78,000**			**$ 16,000**	**$ 16,000**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- Staff trained in classes of 8 at $2,000 per student for 3 days
- Additional consulting time for translating a service methodology (e.g., ITSM, ITIL) into actual work practices and tools
- 8 staff trained annually for the same cost/time

4.3 Centralize IT support services

This project involves migrating IT labor effort for customer, application, and network services currently in Redmond's business units into IS and expanding their roles.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.10	0.20	$ -	$ -			$ -	$ -
SME	0.05	0.10	$ -	$ -			$ -	$ -
IS	0.05	0.10	$ -	$ -			$ -	$ -
Professional Services Labor (Total)	80	120	$ 14,000	$ 21,000			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training	80	120	$ 14,000	$ 21,000			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 14,000**	**$ 21,000**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- SME and IS FTEs coordinate position transfers
- Professional change management assistance

4.4 Align the Information Services (IS) organization with best practices

As indicated by the recommended organizational model in Chapter 3, this project reallocates existing IT staff among Information Services' three divisions – Network Services, Application Services, and Support Services – and adds an Administrative Services division. This project also hires five additional IS FTEs:

- Three additional FTEs for *application support*
- One FTE to manage customer department accounts
- One FTE to for additional *infrastructure support*, including database administration

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Internal Labor (Total)	0.20	0.40	$ -	$ -	5.00	5.00	$ 551,720	$ 551,720
SME			$ -	$ -			$ -	$ -
IS	0.20	0.40	$ -	$ -	5.00	5.00	$ 551,720	$ 551,720
Professional Services Labor (Total)		728	$ -	$ 127,320			$ -	$ -
Procurement		728	$ -	$ 127,320				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ 127,320**			**$ 551,720**	**$ 551,720**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- Internal IS effort for planning and managing personnel moves
- Five new hires:
  - 3 application support FTEs
  - 1 customer account manager FTE
  - 1 infrastructure support FTE
- On the high-end, external recruiting assistance for five new hires, costed at 30% of expected salaries

4.5 Develop a tactical IS work plan

This project establishes a short-term tactical project plan that incorporates current IS projects with the strategic IT projects recommended in this report. The plan examines required IS and SME labor effort for all near-term projects and attempts to "smooth" labor demands to avoid unreasonable resource demands. It also helps inform what strategic and tactical projects can or cannot be completed in desired timeframes.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.05	0.10	$ -	$ -			$ -	$ -
SME			$ -	$ -			$ -	$ -
IS	0.05	0.10	$ -	$ -			$ -	$ -
Professional Services Labor (Total)		100	$ -	$ 17,500			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting		100	$ -	$ 17,500			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ 17,500**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- On the low-end, IS FTEs create the tactical IS work plan
- On the high-end, the City works with external consulting services to develop the plan

5.1 Consolidate data centers

In accordance with public safety guidelines governing police applications and data repositories, this project merges the City's two data centers in the Police building into one data center capable of serving Redmond's needs.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.12	0.17	$ -	$ -			$ -	$ -
SME	0.04	0.06	$ -	$ -			$ -	$ -
IS	0.08	0.12	$ -	$ -			$ -	$ -
Professional Services Labor (Total)		120	$ -	$ 21,000			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training		120	$ -	$ 21,000			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ 21,000**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- On the low-end, SME and IS FTE work together to coordinate transitioning servers from the Police data center to the main City data center
- IS FTEs plan for additional backup power and storage requirements
- On the high-end, the City utilizes professional data center migration assistance

5.2 Increase wide area network bandwidth

This project conducts an analysis of bandwidth needs in Redmond's edge locations (e.g., Redmond Ridge, fire stations 13, 14, 16, and 18) and leases additional data connection lines as appropriate.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.11	0.18	$ -	$ -			$ -	$ -
SME			$ -	$ -			$ -	$ -
IS	0.11	0.18	$ -	$ -			$ -	$ -
Professional Services Labor (Total)	20	40	$ 3,500	$ 7,000			$ -	$ -
Procurement	20	40	$ 3,500	$ 7,000				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ 24,000	$ 28,800			$ 24,000	$ 28,800
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 27,500**	**$ 35,800**			**$ 24,000**	**$ 28,800**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- IS FTEs assist the network vendor in connecting each location
- The City leases an additional T1 connection to serve each of the five locations
- Each installation location requires 5-10 hours of professional installation/configuration

5.3 Deploy field and remote access for mobile workers

This project procures and implements laptops and broadband connection devices for the City's mobile employees.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.05	0.10	$ -	$ -			$ -	$ -
SME			$ -	$ -			$ -	$ -
IS	0.05	0.10	$ -	$ -			$ -	$ -
Professional Services Labor (Total)			$ -	$ -			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting			$ -	$ -			$ -	$ -
Hardware			$ 24,000	$ 70,000			$ 6,000	$ 17,500
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 24,000**	**$ 70,000**			**$ 6,000**	**$ 17,500**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- The City provided an estimate of 16-28 mobile employees who do not currently use laptops in the field. These estimates include:
  - 4-6 users in Facilities Maintenance
  - 7-14 users in Construction Engineering and Solid Waste/Recycling
  - 5-9 in Operations, Facilities and Grounds
- On the low-end, the City purchases 16 laptops at $1,500 each – not including a docking solution or peripherals
- On the high-end, the City purchases 28 laptops at $2,500 each - including docking stations and peripherals
- IS FTEs configure each laptop
- Recurring costs are 25% of one-time costs which match the City's 4-year PC replacement cycle

5.4 Develop a formal IT disaster recovery plan

This project creates policies and procedures for Redmond's IT assets should a major outage or other disaster render the City unable to conduct normal IT operations. These procedures govern how soon the City can attempt to resume IT operations, what services and data are recovered in what order, and regulations for moving to other City locations or hosting servers with a third party.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	Low	High	Low	High	Low	High	Low	High
Internal Labor (Total)	0.20	0.40	$ -	$ -			$ -	$ -
SME	0.10	0.25	$ -	$ -			$ -	$ -
IS	0.10	0.15	$ -	$ -			$ -	$ -
Professional Services Labor (Total)		675	$ -	$ 118,125			$ -	$ -
Procurement			$ -	$ -				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting		675	$ -	$ 118,125			$ -	$ -
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ -**	**$ 118,125**			**$ -**	**$ -**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- At the low-end, the City develops its own disaster recovery plan
- At the high-end, the City utilizes professional consulting for developing a disaster recovery plan

5.5 Develop a citywide IT security plan

This project establishes a formal plan detailing policies and procedures to ensure the City's network, computer hardware, applications and databases are secured against physical and logical threats – both internal and external to the City.

	One-time				Recurring			
	Time*		Costs		Time*		Costs	
Cost Category	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Internal Labor (Total)	0.05	0.10	$ -	$ -	0.05		$ -	$ -
SME			$ -	$ -			$ -	$ -
IS	0.05	0.10	$ -	$ -	0.05		$ -	$ -
Professional Services Labor (Total)	286	457	$ 50,000	$ 80,000		57	$ -	$ 10,000
Procurement			$ -	$ -				
Implementation and Training			$ -	$ -			$ -	$ -
Project Management			$ -	$ -				
Quality Assurance			$ -	$ -				
Miscellaneous Consulting	286	457	$ 50,000	$ 80,000		57	$ -	$ 10,000
Hardware			$ -	$ -			$ -	$ -
Software			$ -	$ -			$ -	$ -
Total Cost			**$ 50,000**	**$ 80,000**			**$ -**	**$ 10,000**

*PTI estimates internal labor in FTE and external labor in hours

Cost assumptions:

- On the low-end, IS FTEs update the plan
- On the high-end, the City utilizes professional consulting assistance to update the plan on a yearly basis
- IS FTEs coordinate with professional consulting assistance to develop the IT security plan